

# The first four-color photometric investigation of the W UMa type contact binary V868 Mon

Zhou XIAO<sup>1,2,3</sup> Qian SHENGBANG<sup>1,2,3</sup> He JIAJIA<sup>1,2</sup> Zhang JIA<sup>1,2</sup> Jiang LINQIAO<sup>1,2,3</sup>

<sup>1</sup>*Yunnan Observatories, Chinese Academy of Sciences, PO Box 110, 650216 Kunming, China  
zhouxiaophy@ynao.ac.cn*

<sup>2</sup>*Key Laboratory of the Structure and Evolution of Celestial Objects, Chinese Academy of Sciences,  
PO Box 110, 650216 Kunming, China*

<sup>3</sup>*Graduate University of the Chinese Academy of Sciences, Yuquan Road 19, Sijingshang Block,  
100049 Beijing, China*

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## Abstract

The first four-color light curves of V868 Mon in the  $B$   $V$   $R_c$  and  $I_c$  bands are presented and analyzed by using the Wilson-Devinney method of the 2013 version. It is discovered that V868 Mon is an A-subtype contact binary ( $f=58.9\%$ ) with a large temperature difference of  $916K$  between the two components. Using the eight new times of light minimum determined by the authors together with those collected from literatures, the authors found that the general trend of the observed-calculate ( $O-C$ ) curve shows a upward parabolic variation that corresponds to a long-term increase in the orbital period at a rate of  $dP/dt = 9.38 \times 10^{-7} day \cdot year^{-1}$ . The continuous increase may be caused by a mass transfer from the less massive component to the more massive one.

**Key words:** binaries: close – binaries: eclipsing – stars: individual: V868 Mon

## 1. Introduction

V868 Mon, also named BD-2 2221 or GSC 4835 1947, is a relatively bright ( $V = 8.9$  mag) eclipsing binary. Its light variability was first discovered on Stardial images by Wils et al. (2003). The linear ephemeris determined by them is:

$$Min.I(HJD) = 2452681.731 + 0^d.63772 \times E. \quad (1)$$

Later, Otero et al. (2004) improved its orbital period to  $P = 0.637705$  days and classified this binary as EB type. Then, Deb et al. (2011) listed the geometrical and physical parameters obtained from the  $V$  band CCD data of the All Sky Automated Survey (ASAS)-3 project using

the Wilson-Devinney code. As the ASAS-3 data of V868 Mon has a very low precision and was observed only in  $V$  band, more observation about this target is still needed. The 2MASS infrared color index of V868 Mon gave  $J - K = 0.16$ , corresponding to an F0 spectral type. But the color index of *Tycho-2* ( $B - V$ ) = 0.20 redetermined the spectral type to be A8V. According to the spectral template result of Pribulla et al. (2009), the spectral type between A8 to F1 was an acceptable result.

## 2. New Photometric Observations

The four-color ( $B$   $V$   $R_c$  and  $I_c$ ) light curves of V868 Mon were observed in three continuous nights on February 1, 2 and 3 in 2012 with the Andor DW436 2K CCD camera attached to the 60cm reflecting telescope at Yunnan Observatories (YNOs). The coordinates of the variable star, the comparison star and the check star are listed in Table 1. During the observation, the wide band, Johnson-Cousins  $B$   $V$   $R_c$   $I_c$  filters were used. The integration time was 50s for  $B$  band, 25s for  $V$  band, 15s for  $R_c$  band, and 10s for  $I_c$  band respectively. A few lines of the original light curve data are displayed in Table 2. The phase of those observations displayed in Fig. 1 were calculated with the following linear ephemeris:

$$Min.I(HJD) = 2455961.142815125 + 0^d.637705 \times E. \quad (2)$$

Meanwhile, the authors got three times of minima (TOMs) through the light curve observation on February 1, 2 and 3 in 2012. After that, two TOMs were observed on February 28 and December 17 in 2012 using the 60cm reflecting telescope at Yunnan Observatories. One TOM was observed on January 21 in 2014 using the 85cm reflecting telescope in Xinglong Observation base. Two TOMs were observed on November 14 and 16 in 2014 using the 1m reflecting telescope at Yunnan Observatories. PHOT (measure magnitudes for a list of stars) of the aperture photometry package of the IRAF was used to reduce the observed images. By using a least-square parabolic fitting method, the new CCD times of light minimum were determined and listed in Table 3. The TOM observational data are list in Table 10 to Table 26.

**Table 1.** Coordinates of V868 Mon, the comparison, and the check stars

Targets	name	$\alpha_{2000}$	$\delta_{2000}$
Variable	V868 Mon	$07^h 39^m 04.8^s$	$-02^\circ 39' 05.6''$
The comparison	2MASS J07384996-0236215	$07^h 38^m 49.9^s$	$-02^\circ 36' 21.5''$
The check	TYC 4835-2088-1	$07^h 38^m 45.6^s$	$-02^\circ 37' 52.5''$

**Table 2.** The original light curve data of V868 Mon observed by 60cm reflecting telescope in Yunnan Observatories

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.00905	-0.369	59.02602	-0.430	59.04292	-0.464	59.05988	-0.487	59.07678	-0.511	59.09374	-0.501
59.01078	-0.373	59.02768	-0.440	59.04464	-0.470	59.06154	-0.488	59.07850	-0.508	59.09540	-0.499
59.01243	-0.407	59.02940	-0.436	59.04630	-0.473	59.06326	-0.495	59.08022	-0.509	59.09712	-0.496
59.01416	-0.397	59.03106	-0.435	59.04802	-0.472	59.06498	-0.490	59.08188	-0.504	59.09884	-0.494
59.01581	-0.395	59.03278	-0.442	59.04974	-0.475	59.06664	-0.491	59.08360	-0.500	59.10050	-0.496
59.01754	-0.397	59.03443	-0.449	59.05140	-0.481	59.06836	-0.490	59.08526	-0.504	59.10222	-0.485
59.01919	-0.410	59.03616	-0.453	59.05306	-0.481	59.07002	-0.506	59.08698	-0.495	59.10388	-0.482
59.02092	-0.416	59.03781	-0.449	59.05478	-0.487	59.07174	-0.494	59.08864	-0.496	59.10560	-0.483
59.02264	-0.421	59.03954	-0.455	59.05650	-0.489	59.07340	-0.496	59.09036	-0.503	59.10726	-0.482
59.02430	-0.426	59.04126	-0.463	59.05816	-0.492	59.07512	-0.509	59.09202	-0.506	59.10898	-0.477

**Notes.** These are only a few lines of the light curve data, the whole data are list in Table 6, Table 7, Table 8 and Table 9.

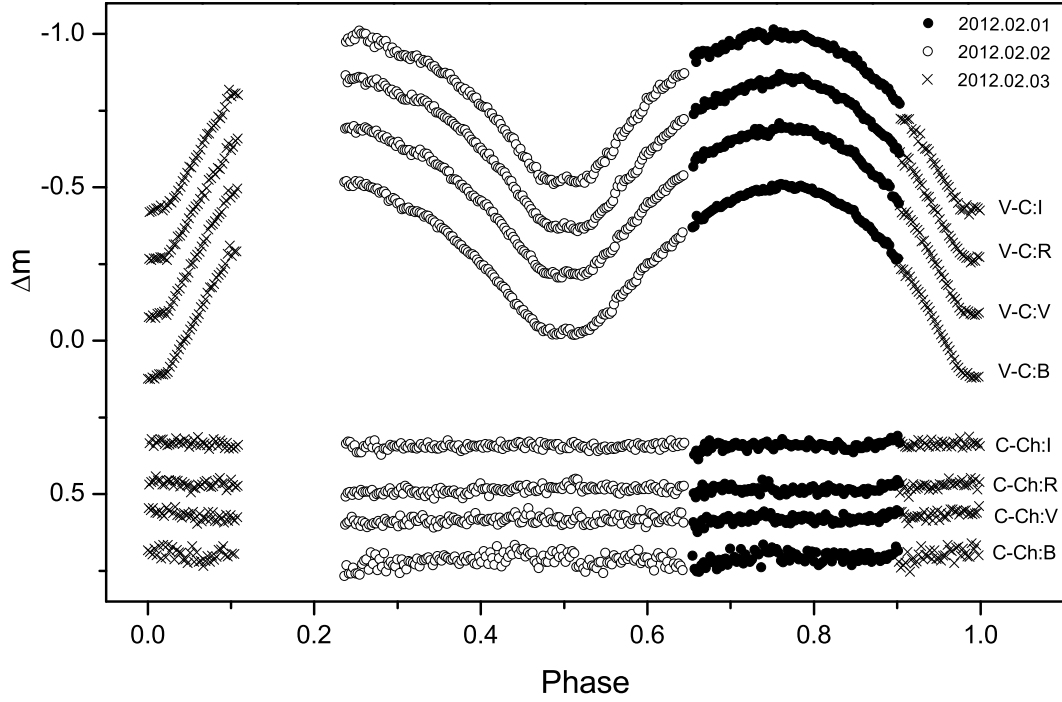
**Table 3.** ( $O - C$ ) values of light minimum times for V868 Mon

JD (Hel.)	Error	Min	Epoch	( $O - C$ )	Method	Reference
(2400000+)						
52681.731		II	-589.5	0.00590	CCD	Wils et al. (2003)
53057.664		I	0	0	CCD	Otero et al. (2004)
53745.73825	0.00063	I	1079	-0.00944	CCD	Deb et al. (2011)
54157.0662	0.00180	I	1724	-0.00122	CCD	Otero et al. (2004)
55939.4617	0.0002	I	4519	0.00881	CCD	Liakos et al. (2014)
55940.4192	0.0002	II	4520.5	0.00975	CCD	Liakos et al. (2014)
55953.4923	0.0002	I	4541	0.00990	CCD	Liakos et al. (2014)
55959.23184	0.00021	I	4550	0.01009	CCD	60cm
55960.18838	0.00029	II	4551.5	0.01007	CCD	60cm
55961.14282	0.00020	I	4553	0.00795	CCD	60cm
55986.01873	0.00096	I	4592	0.01337	CCD	60cm
55986.65190	0.00090	I	4593	0.00884	CCD	Diethelm et al. (2012)
56279.36496	0.00079	I	5052	0.01530	CCD	60cm
56679.20920	0.00023	I	5679	0.01850	CCD	85cm
56976.38424	0.00017	I	6145	0.02302	CCD	1m
56978.29658	0.00044	I	6148	0.02224	CCD	1m

**Notes.** 60cm and 1m denotes the 60cm and 1m reflecting telescope in Yunnan Observatories respectively, and 85cm denotes to the 85cm reflecting telescope in Xinglong Observation base.

### 3. Orbital Period Variations

The study of the orbital period change is a very important part for contact binary stars. But the period change investigation of V868 Mon has been neglected since it was discovered



**Fig. 1.** CCD photometric light curves in the  $B$   $V$   $R_c$  and  $I_c$  bands obtained using the 60cm telescope at YNAO in 2012. The magnitude difference between the comparison and the check stars are also shown. Solid circles, open circles and crosses refer to the data observed on February 1, February 2 and February 3, respectively.

as an contact binary system in 2003. In this paper, we collected all available times of light minimum and list them in Table 3. Using the ephemeris given in O-C gateway <sup>1</sup>,

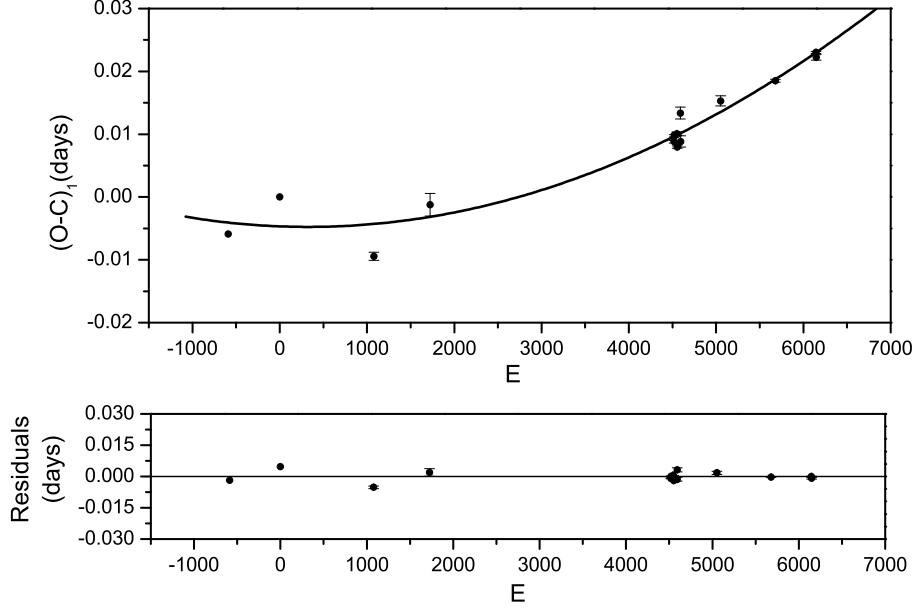
$$Min.I(HJD) = 2453057.664 + 0^d.637705 \times E. \quad (3)$$

the  $(O - C)$  values are computed. The  $(O - C)$  values (observational times of light minimum - calculational times of light minimum) calculated by equation (3) are listed in the fourth column of Table 3, and plotted in the upper panel of Fig. 2. During the computation, times with the same epoch have been averaged, and only the mean values are listed in Table 3. The general  $(O-C)_1$  trend of V868 Mon shown in the upper panel of Fig. 3 indicates a visual change in its orbit. Based on the least-square method, an upward parabolic variation is added to the linear ephemeris of Equation (3). The new ephemeris is

$$Min.I = 2453057.65933(\pm 0.00018) + 0.637704468(\pm 0.000000135) \times E + 0.81956(\pm 0.023212) \times 10^{-9} \times E^2. \quad (4)$$

<sup>1</sup> <http://astro.sci.muni.cz/variables/ocgate/>

With the quadratic term included in this ephemeris, a continuous period increase, at a rate of  $dP/dt = 9.38 \times 10^{-7} \text{ day} \cdot \text{year}^{-1}$  is determined. The residuals from equation (4) are showed in the lower panel of Fig. 2.



**Fig. 2.** A plot of the  $(O-C)_1$  curve of V868 Mon from the linear ephemeris of Equation (3) is shown in the upper panel. The solid line in the panel refers to upward parabolic variation, which reveals a continuous increase in the orbital period. After upward parabolic change is removed, the residuals are plotted in the lower panel.

#### 4. The Analysis of the light curves by W-D Code

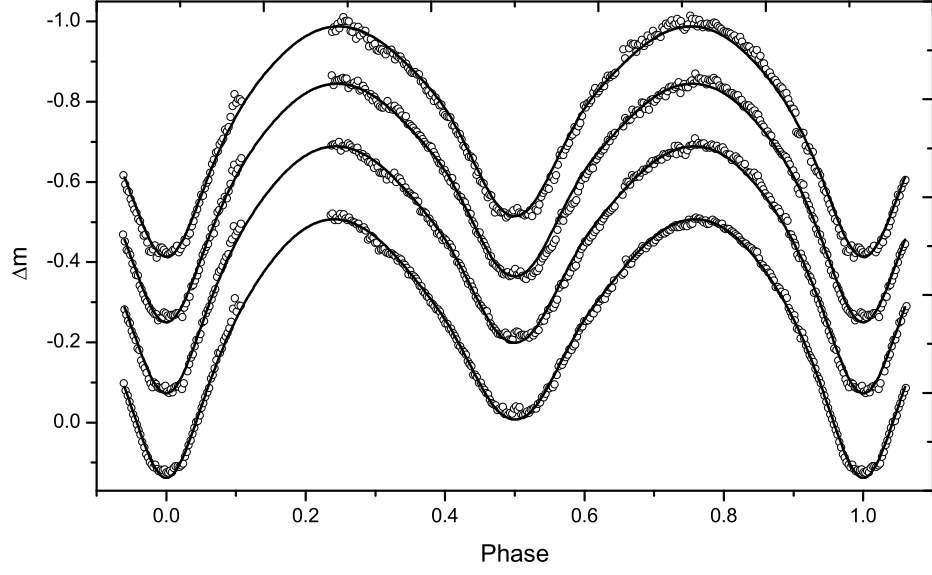
V868 Mon has been found as a variable system for more than 10 years. To understand its geometrical structure and evolutionary state, the  $B V R_c$  and  $I_c$  light curves shown in Fig. 2 were analyzed using the W-D method of 2013 version (Wilson & Devinney 1971; Wilson 1990, 1994; Wilson & Van Hamme, 2003; Van Hamme & Wilson 2007; Wilson 2008; Wilson et al. 2010; Wilson 2012). During the solution process, the effective temperature of star 1 was chosen as  $T_1 = 7400\text{K}$  according to its spectral type of A8/F1 (Cox2000). The radial velocity study of V868 Mon given by Pribulla et al. (2009) show that the mass ratio of this binary system was  $q = 0.373(8)$ . As shown in Fig. 1, the light curve depths between the primary minima and the second minima have large difference, thus, the effective temperature between the primary star and the second star may also have large difference. So we take the values of the gravity-darkening coefficients and the bolometric albedo for both components differently, i.e.,  $g_1 = 1, g_2 = 0.32$  (Lucy 1967) and  $A_1 = 1, A_2 = 0.5$  (Rucinski et al. 1969). The limb-darkening

coefficients were used according to Van Hamme (1993)'s table (x and y are the bolometric and bandpass limb-darkening coefficients). The adjustable parameters were: the orbital inclination  $i$ ; the mean temperature of star 2,  $T_2$ ; the monochromatic luminosity of star 1,  $L_{1B}$ ,  $L_{1V}$ ,  $L_{1R}$  and  $L_{1I}$ ; the dimensionless potential of star 1 (mode 3 for overcontact configuration,  $\Omega_1 = \Omega_2$ ); and the third light,  $l_3$ . The photometric solutions are listed in Table 4 and the theoretical light curves computed with those photometric parameters are plotted in Fig. 3 and Fig. 4. And also, the contact configuration of V868 Mon is displayed in Fig. 5.

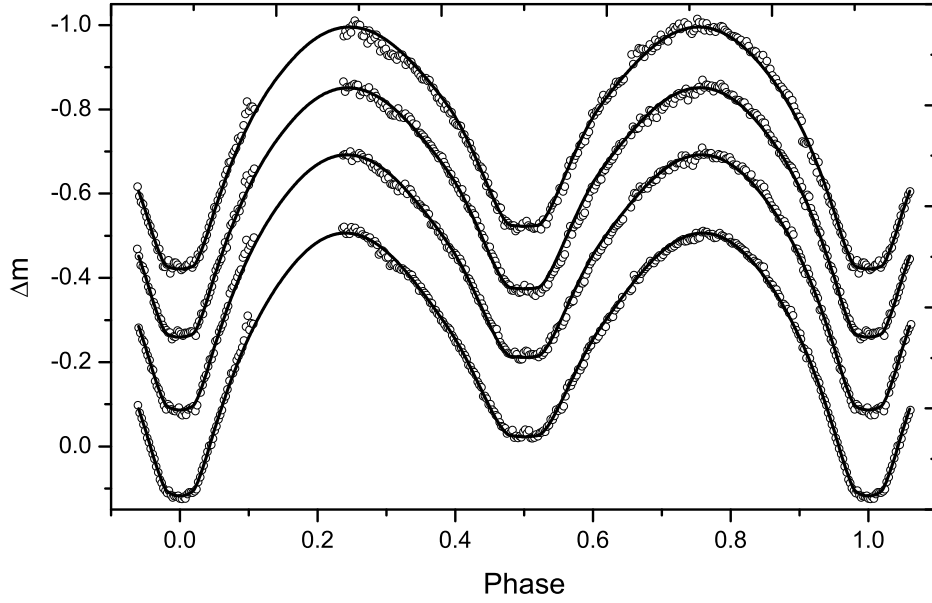
**Table 4.** Photometric solutions for V868 Mon

Parameters	Without $L_3$	With $L_3$
$g_1$	1.00(fixed)	1.00(fixed)
$g_2$	0.32(fixed)	0.32(fixed)
$A_1$	1.00(fixed)	1.00(fixed)
$A_2$	0.50(fixed)	0.50(fixed)
q ( $M_2/M_1$ )	0.373(fixed)	0.373(fixed)
$T_1(K)$	7400(fixed)	7400(fixed)
$i(^{\circ})$	78.52( $\pm 0.98$ )	83.67( $\pm 0.16$ )
$\Omega_{in}$	2.622506	2.622506
$\Omega_{out}$	2.393652	2.393652
$\Omega_1 = \Omega_2$	2.487810	2.517320
$T_2(K)$	6446( $\pm 7$ )	6484( $\pm 6$ )
$L_1/(L_1 + L_2)$ (B)	0.8344( $\pm 0.0008$ )	0.8271( $\pm 0.0017$ )
$L_1/(L_1 + L_2)$ (V)	0.8080( $\pm 0.0007$ )	0.8011( $\pm 0.0022$ )
$L_1/(L_1 + L_2)$ (R)	0.7900( $\pm 0.0008$ )	0.7832( $\pm 0.0033$ )
$L_1/(L_1 + L_2)$ (I)	0.7728( $\pm 0.0011$ )	0.7662( $\pm 0.0052$ )
$r_1(pole)$	0.4591( $\pm 0.0004$ )	0.4652( $\pm 0.0006$ )
$r_1(side)$	0.4965( $\pm 0.0006$ )	0.5051( $\pm 0.0008$ )
$r_1(back)$	0.5314( $\pm 0.0008$ )	0.5432( $\pm 0.0012$ )
$r_2(pole)$	0.2994( $\pm 0.0005$ )	0.3062( $\pm 0.0007$ )
$r_2(side)$	0.3156( $\pm 0.0006$ )	0.3241( $\pm 0.0008$ )
$r_2(back)$	0.3690( $\pm 0.0012$ )	0.3872( $\pm 0.0019$ )
$L_3/(L_1 + L_2 + L_3)$ (B)		0.0263( $\pm 0.0001$ )
$L_3/(L_1 + L_2 + L_3)$ (V)		0.0224( $\pm 0.0001$ )
$L_3/(L_1 + L_2 + L_3)$ (R)		0.0193( $\pm 0.0002$ )
$L_3/(L_1 + L_2 + L_3)$ (I)		0.0175( $\pm 0.0001$ )
$f$	46.0%( $\pm 0.9\%$ )	58.9%( $\pm 1.2\%$ )
$\Sigma\omega(O - C)^2$	0.0163319	0.0113492

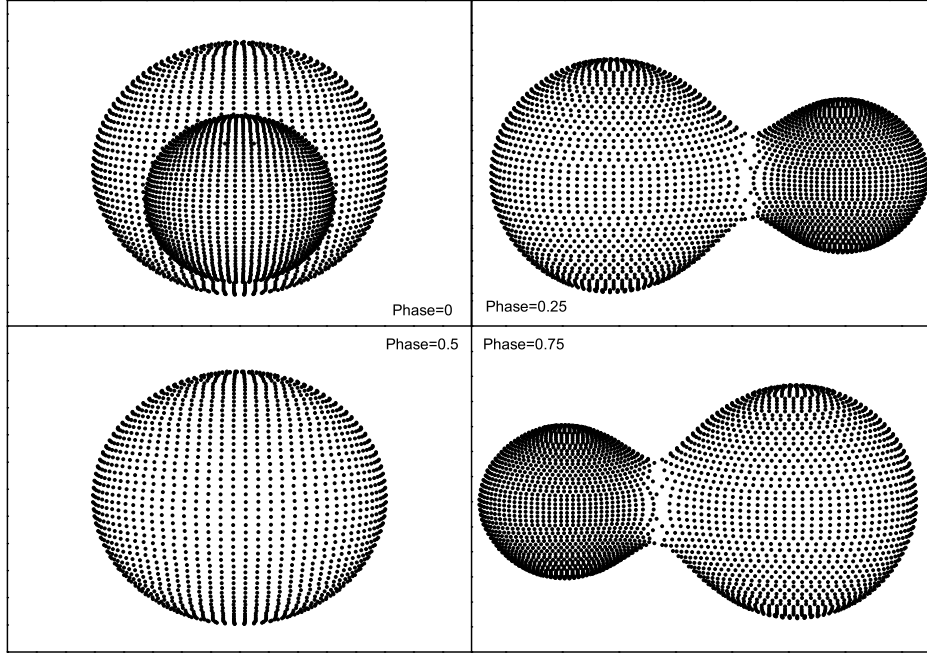
**Notes.** The authors use the mass ratio of V868 Mon given by Pribulla et al. (2009) and made it as an unadjustable parameter.



**Fig. 3.** Observed (open circles) and theoretical (line) light curves in the  $BVR_c$  and  $I_c$  band for V868 Mon (without  $l_3$ ).



**Fig. 4.** Observed (open circles) and theoretical (line) light curves in the  $BVR_c$  and  $I_c$  band for V868 Mon (with  $l_3$ ).



**Fig. 5.** Contact configurations of V868 Mon at phase 0.0, 0.25, 0.5, 0.75,

## 5. Conclusions

The light curve solution indicates that V868 Mon is a A-subtype overcontact binary system. During the computing, the authors set the third light ( $l_3$ ) as an adjustable parameter, and both of the results with and without  $l_3$  are presented in Table 4. The results show that when  $l_3$  is added, the W-D program will obtain a much smaller residual. In Fig. 3 and Fig. 4, the solid lines represent the theoretical light curves. It is obvious to point out that theoretical light curves containing third light give a much better fitting, especially for the primary and the second minima. Thus, V868 Mon is probably a triple system. The inclination of the binary system is  $i = 83.67^\circ$ . According to the radial velocity study by Pribulla et al. (2009), who gave the result that  $(M_1 + M_2)\sin^3 i = 2.504$  and  $q=0.373$ , the authors can get the absolute elements of V868 Mon in solar units as shown in Table 5. The evolutionary statu of the primary star places it in the middle between the Zero Age Main Sequence (ZAMS) and Terminal Age Main Sequence (TAMS) lines of the H-R diagram. The secondary component is evidently more evolved than the primary star and is clearly overluminous and have higher effective temperature for its present mass.

The orbital period of V868 Mon is increasing at a rate of  $dP/dt = 9.38 \times 10^{-7} \text{ day} \cdot \text{year}^{-1}$ . The long term period decreasing may be due to conservative mass transfer from the less massive component to the more massive one, which coincides with the result of Qian et al. (2001).



**Table 5.** Absolute elements of V868 Mon

Parameters	Primary	Secondary
$M$	$2.389(\pm 0.509)M_{\odot}$	$0.891(\pm 0.190)M_{\odot}$
$R$	$2.331(\pm 0.001)R_{\odot}$	$1.562(\pm 0.001)R_{\odot}$
$L$	$14.702(\pm 0.010)L_{\odot}$	$3.893(\pm 0.005)L_{\odot}$

By combining the absolute parameters of V868 Mon with the well-known equation  $\frac{dM_2}{dt} = \frac{M_1 M_2}{3p(M_1 - M_2)} \times dp/dt$ , the mass transfer, at a rate of  $\frac{dM_2}{dt} = 6.93 \times 10^{-7} M_{\odot}/year$  is determined. However, we can't exclude the possibility of angular momentum loss due to a magnetic stellar wind. As V868 Mon is a late A, early F type star, and our observation have not detected any activity of magnetic spot, so maybe the mass transfer from the less massive component to the more massive one is more reliable. And also, as the light curves analysis shows that there is a third component around the binary system and the O-C diagram consists of only 16 points in a time span of 12 years, the upward parabolic variation may be just a part of the periodic variation caused by the third component. Thus, more observation of TOMs are needed in the future.

Most of contact binaries have temperatures of the components roughly equal because of sharing a common envelope with the same entropy, thereby making the effective temperatures almost equal over the surface (Paczynski et al. 2006). As in the case of V868 Mon, the contact of degree is 58.9%, which means this system is a deep contact binary system, and photometric solutions list in Table 4 gives a large temperature difference (916K) between the primary and the secondary star. The authors suppose that V868 Mon is a detach system at first, then mass transfer occurs between the two components, and it evolve into a contact system gradually. This is quite different from those of late type contact binaries in which the existence of the third component have played an important role during their formation and evolution (Qian et al. 2013). The formation and evolution of early-type contact binaries are still unsolved problems in stellar astrophysics. More observation and analysis about early type contact binaries are quite needed.

In summary, V868 Mon is a deep contact (contact of degree larger than 50%) binary with total eclipses, which allows us to derive very precise photometric elements. Long term period investigation reveals that the period of V868 Mon shows a secular period increase, which may due to the mass transfer between the two components.

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of V868 Mon were obtained with the 60cm and the 1.0m telescopes at the Yunnan Observatories, and the 85cm telescope in Xinglong Observation base in China.

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**Table 6.** The original data of V868 Mon in *B* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.00905	-0.369	59.10222	-0.485	60.04494	-0.483	60.13811	-0.180	60.23128	-0.153	61.76368	0.087
59.01078	-0.373	59.10388	-0.482	60.04666	-0.485	60.13977	-0.176	60.23300	-0.163	61.76534	0.099
59.01243	-0.407	59.10560	-0.483	60.04832	-0.487	60.14149	-0.169	60.23466	-0.169	61.76706	0.105
59.01416	-0.397	59.10726	-0.482	60.05004	-0.479	60.14321	-0.153	60.23638	-0.183	61.76879	0.111
59.01581	-0.395	59.10898	-0.477	60.05177	-0.456	60.14487	-0.146	60.23810	-0.181	61.77044	0.105
59.01754	-0.397	59.11064	-0.474	60.05342	-0.460	60.14659	-0.140	60.23976	-0.190	61.77217	0.116
59.01919	-0.410	59.11236	-0.470	60.05515	-0.465	60.14825	-0.119	60.24148	-0.195	61.77382	0.121
59.02092	-0.416	59.11408	-0.466	60.05680	-0.461	60.14997	-0.120	60.24314	-0.214	61.77555	0.118
59.02264	-0.421	59.11574	-0.463	60.05853	-0.448	60.15163	-0.113	60.24486	-0.229	61.77727	0.119
59.02430	-0.426	59.11746	-0.454	60.06018	-0.449	60.15335	-0.099	60.24652	-0.237	61.77893	0.117
59.02602	-0.430	59.11912	-0.451	60.06191	-0.429	60.15507	-0.100	60.24824	-0.240	61.14294	0.124
59.02768	-0.440	59.12084	-0.446	60.06363	-0.432	60.15673	-0.087	60.24996	-0.253	61.14460	0.125
59.02940	-0.436	59.12250	-0.446	60.06528	-0.432	60.15845	-0.082	60.25162	-0.253	61.14632	0.120
59.03106	-0.435	59.12422	-0.440	60.06701	-0.434	60.16011	-0.074	60.25334	-0.255	61.14798	0.124
59.03278	-0.442	59.12588	-0.437	60.06866	-0.424	60.16183	-0.071	60.25500	-0.261	61.14970	0.113
59.03443	-0.449	59.12760	-0.435	60.07039	-0.423	60.16349	-0.057	60.25672	-0.274	61.15136	0.109
59.03616	-0.453	59.12926	-0.429	60.07204	-0.420	60.16521	-0.048	60.25838	-0.272	61.15308	0.109
59.03781	-0.449	59.13098	-0.427	60.07377	-0.422	60.16687	-0.046	60.26010	-0.286	61.15474	0.110
59.03954	-0.455	59.13271	-0.426	60.07542	-0.418	60.16859	-0.043	60.26183	-0.284	61.15646	0.107
59.04126	-0.463	59.13436	-0.409	60.07715	-0.415	60.17031	-0.031	60.26348	-0.302	61.15812	0.102
59.04292	-0.464	59.13609	-0.396	60.07887	-0.404	60.17197	-0.035	60.26521	-0.308	61.15984	0.085
59.04464	-0.470	59.13774	-0.392	60.08053	-0.409	60.17369	-0.033	60.26686	-0.307	61.16156	0.073
59.04630	-0.473	59.13946	-0.385	60.08225	-0.407	60.17535	-0.039	60.26859	-0.308	61.16322	0.056
59.04802	-0.472	59.14112	-0.383	60.08391	-0.397	60.17707	-0.021	60.27024	-0.323	61.16494	0.045
59.04974	-0.475	59.14284	-0.374	60.08563	-0.393	60.17873	-0.025	60.27197	-0.330	61.16660	0.028
59.05140	-0.481	59.14450	-0.372	60.08729	-0.386	60.18045	-0.020	60.27369	-0.336	61.16832	0.013
59.05306	-0.481	59.14622	-0.362	60.08901	-0.370	60.18211	-0.024	60.27535	-0.336	61.16998	-1E-3
59.05478	-0.487	59.14788	-0.354	60.09067	-0.379	60.18383	-0.022	60.27707	-0.354	61.17170	-0.004
59.05650	-0.489	59.14960	-0.338	60.09239	-0.368	60.18556	-0.035	61.71796	-0.255	61.17336	-0.018
59.05816	-0.492	59.15133	-0.338	60.09411	-0.364	60.18721	-0.040	61.71968	-0.234	61.17508	-0.037
59.05988	-0.487	59.15298	-0.334	60.09577	-0.359	60.18894	-0.031	61.72134	-0.232	61.17674	-0.048
59.06154	-0.488	59.15471	-0.326	60.09749	-0.352	60.19059	-0.038	61.72306	-0.210	61.17846	-0.064
59.06326	-0.495	59.15636	-0.317	60.09915	-0.341	60.19232	-0.020	61.72472	-0.224	61.18018	-0.075
59.06498	-0.490	59.15809	-0.323	60.10087	-0.340	60.19397	-0.019	61.72644	-0.209	61.18184	-0.086
59.06664	-0.491	59.15981	-0.311	60.10253	-0.326	60.19570	-0.021	61.72810	-0.193	61.18356	-0.110
59.06836	-0.490	59.16147	-0.286	60.10425	-0.323	60.19742	-0.028	61.72982	-0.181	61.18522	-0.119
59.07002	-0.506	59.16319	-0.276	60.10591	-0.315	60.19908	-0.024	61.73154	-0.168	61.18694	-0.135
59.07174	-0.494	59.16485	-0.265	60.10763	-0.312	60.20080	-0.032	61.73320	-0.160	61.18867	-0.156

**Table 6.** Continued

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.07340	-0.496	59.16657	-0.268	60.10929	-0.299	60.20246	-0.033	61.73492	-0.151	61.19032	-0.174
59.07512	-0.509	60.01790	-0.518	60.11101	-0.296	60.20418	-0.037	61.73658	-0.134	61.19205	-0.174
59.07678	-0.511	60.01956	-0.521	60.11273	-0.289	60.20584	-0.035	61.73830	-0.117	61.19370	-0.185
59.07850	-0.508	60.02128	-0.505	60.11439	-0.282	60.20756	-0.047	61.73996	-0.109	61.19543	-0.205
59.08022	-0.509	60.02294	-0.510	60.11611	-0.282	60.20928	-0.050	61.74168	-0.098	61.19708	-0.214
59.08188	-0.504	60.02466	-0.505	60.11777	-0.277	60.21094	-0.064	61.74334	-0.080	61.19881	-0.223
59.08360	-0.500	60.02632	-0.520	60.11949	-0.264	60.21266	-0.063	61.74506	-0.067	61.20053	-0.235
59.08526	-0.504	60.02804	-0.512	60.12115	-0.256	60.21432	-0.072	61.74672	-0.052	61.20219	-0.251
59.08698	-0.495	60.02970	-0.519	60.12287	-0.247	60.21604	-0.087	61.74844	-0.037	61.20391	-0.284
59.08864	-0.496	60.03142	-0.509	60.12459	-0.246	60.21776	-0.085	61.75017	-0.020	61.20557	-0.310
59.09036	-0.503	60.03308	-0.505	60.12625	-0.233	60.21942	-0.092	61.75182	-0.009	61.20729	-0.277
59.09202	-0.506	60.03480	-0.511	60.12797	-0.234	60.22114	-0.088	61.75355	0.005	61.20895	-0.292
59.09374	-0.501	60.03652	-0.503	60.12963	-0.223	60.22280	-0.095	61.75520	0.018	61.21067	-0.291
59.09540	-0.499	60.03818	-0.500	60.13135	-0.216	60.22452	-0.119	61.75693	0.030		
59.09712	-0.496	60.03990	-0.499	60.13301	-0.207	60.22624	-0.140	61.75858	0.048		
59.09884	-0.494	60.04156	-0.494	60.13473	-0.193	60.22790	-0.150	61.76030	0.062		
59.10050	-0.496	60.04328	-0.496	60.13639	-0.190	60.22962	-0.144	61.76196	0.079		

**Table 7.** The original data of V868 Mon in *V* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.00963	-0.568	59.10280	-0.678	60.04552	-0.663	60.13868	-0.380	60.23185	-0.345	61.76426	-0.108
59.01135	-0.589	59.10445	-0.669	60.04724	-0.669	60.14034	-0.368	60.23358	-0.363	61.76592	-0.097
59.01301	-0.601	59.10618	-0.667	60.04890	-0.658	60.14206	-0.359	60.23523	-0.365	61.76764	-0.088
59.01473	-0.600	59.10783	-0.668	60.05062	-0.663	60.14372	-0.346	60.23696	-0.374	61.76930	-0.100
59.01639	-0.593	59.10956	-0.655	60.05228	-0.650	60.14544	-0.351	60.23861	-0.388	61.77102	-0.096
59.01811	-0.617	59.11121	-0.660	60.05400	-0.650	60.14717	-0.339	60.24034	-0.387	61.77268	-0.088
59.01977	-0.611	59.11294	-0.664	60.05572	-0.645	60.14882	-0.329	60.24206	-0.391	61.77440	-0.085
59.02149	-0.612	59.11459	-0.658	60.05738	-0.635	60.15055	-0.314	60.24371	-0.408	61.77612	-0.084
59.02315	-0.617	59.11632	-0.655	60.05910	-0.648	60.15220	-0.307	60.24544	-0.418	61.77778	-0.088
59.02487	-0.613	59.11797	-0.641	60.06076	-0.638	60.15393	-0.296	60.24709	-0.433	61.77950	-0.092
59.02653	-0.623	59.1197	-0.638	60.06248	-0.623	60.15558	-0.291	60.24882	-0.439	61.14345	-0.077
59.02825	-0.630	59.12142	-0.645	60.06414	-0.622	60.15731	-0.284	60.25047	-0.452	61.14517	-0.074
59.02997	-0.628	59.12308	-0.626	60.06586	-0.621	60.15896	-0.278	60.25220	-0.449	61.14683	-0.083
59.03163	-0.633	59.1248	-0.623	60.06752	-0.622	60.16069	-0.278	60.25392	-0.453	61.14855	-0.075
59.03335	-0.633	59.12646	-0.623	60.06924	-0.606	60.16234	-0.262	60.25558	-0.462	61.15021	-0.088
59.03501	-0.647	59.12818	-0.617	60.07096	-0.616	60.16407	-0.247	60.25730	-0.466	61.15193	-0.091
59.03673	-0.652	59.12984	-0.623	60.07262	-0.615	60.16579	-0.239	60.25896	-0.475	61.15366	-0.090
59.03839	-0.645	59.13156	-0.613	60.07434	-0.607	60.16745	-0.235	60.26068	-0.481	61.15531	-0.095
59.04011	-0.655	59.13322	-0.616	60.07600	-0.623	60.16917	-0.229	60.26234	-0.494	61.15704	-0.084
59.04177	-0.656	59.13494	-0.600	60.07772	-0.600	60.17083	-0.222	60.26406	-0.488	61.15869	-0.098
59.04349	-0.658	59.1366	-0.591	60.07938	-0.611	60.17255	-0.220	60.26578	-0.502	61.16042	-0.114
59.04521	-0.656	59.13832	-0.582	60.08110	-0.609	60.17421	-0.219	60.26744	-0.509	61.16207	-0.128
59.04687	-0.669	59.14004	-0.572	60.08276	-0.600	60.17593	-0.218	60.26916	-0.517	61.16380	-0.146
59.04859	-0.667	59.1417	-0.564	60.08448	-0.584	60.17765	-0.224	60.27082	-0.523	61.16552	-0.162
59.05025	-0.663	59.14342	-0.564	60.08620	-0.586	60.17931	-0.219	60.27254	-0.526	61.16718	-0.170
59.05197	-0.672	59.14508	-0.555	60.08786	-0.574	60.18103	-0.207	60.27420	-0.530	61.16890	-0.190
59.05363	-0.673	59.1468	-0.541	60.08958	-0.574	60.18269	-0.206	60.27592	-0.535	61.17056	-0.206
59.05535	-0.673	59.14846	-0.540	60.09124	-0.569	60.18441	-0.207	60.27764	-0.539	61.17228	-0.207
59.05701	-0.690	59.15018	-0.532	60.09296	-0.565	60.18607	-0.223	61.71854	-0.441	61.17394	-0.221
59.05873	-0.669	59.15184	-0.534	60.09462	-0.564	60.18779	-0.227	61.72026	-0.418	61.17566	-0.250
59.06045	-0.690	59.15356	-0.525	60.09634	-0.553	60.18951	-0.225	61.72192	-0.410	61.17731	-0.253
59.06211	-0.685	59.15528	-0.508	60.09800	-0.551	60.19117	-0.217	61.72364	-0.421	61.17904	-0.272
59.06383	-0.672	59.15694	-0.508	60.09972	-0.527	60.19289	-0.219	61.72529	-0.409	61.18069	-0.281
59.06549	-0.680	59.15866	-0.512	60.10144	-0.526	60.19455	-0.219	61.72702	-0.394	61.18242	-0.290
59.06721	-0.667	59.16032	-0.503	60.10310	-0.526	60.19627	-0.216	61.72867	-0.387	61.18414	-0.307
59.06887	-0.679	59.16204	-0.470	60.10482	-0.522	60.19799	-0.219	61.73040	-0.368	61.18580	-0.322
59.07059	-0.690	59.16376	-0.469	60.10648	-0.509	60.19965	-0.212	61.73205	-0.362	61.18752	-0.333
59.07231	-0.690	59.16542	-0.460	60.10820	-0.509	60.20137	-0.224	61.73378	-0.352	61.18918	-0.363

**Table 7.** Continued

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.07397	-0.694	59.16708	-0.448	60.10986	-0.498	60.20303	-0.217	61.73543	-0.324	61.19090	-0.376
59.07569	-0.709	60.01841	-0.691	60.11158	-0.496	60.20475	-0.223	61.73716	-0.326	61.19262	-0.380
59.07735	-0.693	60.02014	-0.694	60.11324	-0.486	60.20641	-0.232	61.73888	-0.306	61.19428	-0.390
59.07907	-0.697	60.02186	-0.694	60.11496	-0.472	60.20813	-0.231	61.74054	-0.296	61.19600	-0.402
59.08073	-0.694	60.02352	-0.690	60.11668	-0.473	60.20985	-0.252	61.74226	-0.282	61.19766	-0.413
59.08245	-0.695	60.02524	-0.700	60.11834	-0.466	60.21151	-0.261	61.74392	-0.269	61.19938	-0.420
59.08411	-0.696	60.0269	-0.678	60.12006	-0.455	60.21323	-0.254	61.74564	-0.254	61.20104	-0.448
59.08583	-0.685	60.02862	-0.690	60.12172	-0.459	60.21489	-0.267	61.74730	-0.248	61.20276	-0.457
59.08756	-0.688	60.03027	-0.689	60.12344	-0.454	60.21661	-0.281	61.74902	-0.228	61.20442	-0.490
59.08921	-0.685	60.03200	-0.685	60.12510	-0.443	60.21827	-0.284	61.75068	-0.216	61.20614	-0.467
59.09094	-0.694	60.03365	-0.696	60.12682	-0.445	60.21999	-0.288	61.75240	-0.205	61.20786	-0.477
59.09259	-0.691	60.03538	-0.692	60.12855	-0.436	60.22171	-0.287	61.75406	-0.185	61.20952	-0.483
59.09432	-0.683	60.03703	-0.686	60.13020	-0.421	60.22337	-0.296	61.75578	-0.181	61.21124	-0.496
59.09597	-0.690	60.03876	-0.681	60.13193	-0.420	60.22509	-0.306	61.75750	-0.155		
59.09770	-0.683	60.04048	-0.679	60.13358	-0.400	60.22675	-0.336	61.75916	-0.143		
59.09935	-0.684	60.04214	-0.685	60.13530	-0.398	60.22847	-0.346	61.76088	-0.136		
59.10108	-0.686	60.04386	-0.672	60.13696	-0.390	60.23013	-0.343	61.76254	-0.124		

**Table 8.** The original data of V868 Mon in *R* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.01001	-0.739	59.10312	-0.835	60.04590	-0.831	60.13900	-0.553	60.23224	-0.521	61.76458	-0.288
59.01167	-0.759	59.10484	-0.833	60.04756	-0.840	60.14073	-0.549	60.23389	-0.527	61.76630	-0.281
59.01339	-0.754	59.10650	-0.823	60.04928	-0.832	60.14245	-0.535	60.23562	-0.528	61.76802	-0.276
59.01505	-0.754	59.10822	-0.821	60.05100	-0.822	60.14411	-0.522	60.23727	-0.536	61.76968	-0.270
59.01677	-0.756	59.10988	-0.822	60.05266	-0.813	60.14583	-0.520	60.23900	-0.546	61.77140	-0.270
59.01843	-0.780	59.11160	-0.818	60.05438	-0.819	60.14749	-0.502	60.24072	-0.548	61.77306	-0.255
59.02015	-0.768	59.11332	-0.815	60.05604	-0.804	60.14921	-0.494	60.24238	-0.555	61.77478	-0.261
59.02187	-0.777	59.11498	-0.816	60.05776	-0.813	60.15086	-0.476	60.24410	-0.576	61.77644	-0.260
59.02353	-0.778	59.11670	-0.804	60.05942	-0.805	60.15259	-0.471	60.24576	-0.590	61.77816	-0.275
59.02525	-0.769	59.11836	-0.805	60.06114	-0.794	60.15424	-0.474	60.24748	-0.605	61.77982	-0.272
59.02691	-0.798	59.12008	-0.788	60.06280	-0.788	60.15597	-0.457	60.24920	-0.616	61.14384	-0.267
59.02863	-0.797	59.12174	-0.793	60.06452	-0.786	60.15769	-0.450	60.25086	-0.610	61.14556	-0.263
59.03029	-0.782	59.12346	-0.790	60.06624	-0.786	60.15935	-0.440	60.25258	-0.620	61.14722	-0.269
59.03201	-0.795	59.12512	-0.791	60.06790	-0.790	60.16107	-0.429	60.25424	-0.628	61.14894	-0.269
59.03367	-0.780	59.12684	-0.786	60.06962	-0.802	60.16273	-0.416	60.25596	-0.634	61.15060	-0.269
59.03539	-0.805	59.12850	-0.776	60.07128	-0.782	60.16445	-0.415	60.25762	-0.634	61.15232	-0.273
59.03711	-0.806	59.13022	-0.778	60.07300	-0.788	60.16611	-0.398	60.25934	-0.653	61.15397	-0.273
59.03877	-0.800	59.13194	-0.769	60.07466	-0.780	60.16783	-0.396	60.26106	-0.657	61.15570	-0.270
59.04049	-0.806	59.13360	-0.768	60.07638	-0.790	60.16949	-0.390	60.26272	-0.666	61.15735	-0.263
59.04215	-0.816	59.13532	-0.754	60.07804	-0.780	60.17121	-0.385	60.26444	-0.670	61.15908	-0.287
59.04387	-0.816	59.13698	-0.743	60.07976	-0.783	60.17287	-0.382	60.26610	-0.678	61.16073	-0.297
59.04553	-0.821	59.13870	-0.738	60.08142	-0.776	60.17459	-0.371	60.26782	-0.681	61.16246	-0.315
59.04725	-0.826	59.14036	-0.723	60.08314	-0.766	60.17631	-0.370	60.26948	-0.689	61.16418	-0.314
59.04891	-0.814	59.14208	-0.726	60.08486	-0.758	60.17797	-0.373	60.27120	-0.704	61.16584	-0.340
59.05063	-0.826	59.14374	-0.718	60.08652	-0.764	60.17969	-0.375	60.27292	-0.702	61.16756	-0.343
59.05229	-0.836	59.14546	-0.715	60.08824	-0.744	60.18135	-0.365	60.27458	-0.717	61.16922	-0.354
59.05401	-0.838	59.14718	-0.697	60.08990	-0.744	60.18307	-0.367	60.27630	-0.715	61.17094	-0.367
59.05573	-0.832	59.14884	-0.695	60.09162	-0.740	60.18473	-0.375	60.27796	-0.722	61.17260	-0.380
59.05739	-0.837	59.15056	-0.688	60.09334	-0.735	60.18645	-0.383	61.71892	-0.615	61.17432	-0.399
59.05911	-0.842	59.15222	-0.681	60.09500	-0.728	60.18817	-0.369	61.72058	-0.583	61.17598	-0.418
59.06077	-0.849	59.15394	-0.675	60.09666	-0.725	60.18983	-0.368	61.72230	-0.571	61.17770	-0.427
59.06249	-0.822	59.15560	-0.668	60.09838	-0.717	60.19155	-0.377	61.72396	-0.597	61.17936	-0.438
59.06415	-0.838	59.15732	-0.666	60.10010	-0.714	60.19321	-0.366	61.72568	-0.593	61.18108	-0.445
59.06587	-0.844	59.15898	-0.662	60.10176	-0.707	60.19493	-0.361	61.72734	-0.565	61.18280	-0.463
59.06753	-0.836	59.16070	-0.653	60.10348	-0.700	60.19665	-0.358	61.72906	-0.551	61.18446	-0.484
59.06925	-0.836	59.16236	-0.644	60.10514	-0.694	60.19831	-0.370	61.73078	-0.542	61.18618	-0.472
59.07098	-0.849	59.16408	-0.625	60.10686	-0.685	60.20003	-0.369	61.73244	-0.529	61.18790	-0.498
59.07263	-0.853	59.16580	-0.629	60.10859	-0.690	60.20169	-0.365	61.73416	-0.514	61.18956	-0.525

**Table 8.** Continued

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.07436	-0.845	59.16746	-0.612	60.11024	-0.687	60.20341	-0.373	61.73582	-0.507	61.19128	-0.530
59.07601	-0.870	60.01880	-0.866	60.11196	-0.675	60.20513	-0.378	61.73754	-0.482	61.19294	-0.550
59.07774	-0.852	60.02052	-0.842	60.11362	-0.666	60.20679	-0.378	61.73920	-0.471	61.19466	-0.542
59.07939	-0.859	60.02218	-0.853	60.11534	-0.655	60.20851	-0.385	61.74092	-0.469	61.19632	-0.563
59.08111	-0.858	60.02390	-0.853	60.11700	-0.647	60.21017	-0.401	61.74258	-0.452	61.19804	-0.559
59.08277	-0.851	60.02556	-0.855	60.11872	-0.646	60.21189	-0.409	61.74430	-0.430	61.19976	-0.577
59.08449	-0.856	60.02728	-0.857	60.12038	-0.628	60.21355	-0.415	61.74596	-0.427	61.20142	-0.595
59.08622	-0.843	60.02894	-0.860	60.12210	-0.630	60.21527	-0.423	61.74768	-0.418	61.20314	-0.629
59.08787	-0.855	60.03066	-0.857	60.12383	-0.620	60.21700	-0.431	61.74940	-0.397	61.20480	-0.643
59.08960	-0.853	60.03232	-0.858	60.12548	-0.610	60.21865	-0.434	61.75106	-0.379	61.20652	-0.621
59.09125	-0.854	60.03404	-0.834	60.12721	-0.601	60.22037	-0.438	61.75278	-0.368	61.20818	-0.632
59.09298	-0.860	60.03576	-0.843	60.12886	-0.610	60.22203	-0.448	61.75444	-0.367	61.20990	-0.651
59.09463	-0.854	60.03742	-0.842	60.13059	-0.591	60.22375	-0.456	61.75616	-0.342	61.21156	-0.659
59.09636	-0.852	60.03914	-0.848	60.13224	-0.588	60.22541	-0.481	61.75782	-0.333		
59.09808	-0.841	60.04080	-0.841	60.13397	-0.569	60.22713	-0.504	61.75954	-0.320		
59.09974	-0.836	60.04252	-0.852	60.13562	-0.564	60.22886	-0.523	61.76120	-0.307		
59.10146	-0.833	60.04418	-0.828	60.13735	-0.562	60.23051	-0.503	61.76292	-0.301		



**Table 9.** The original data of V868 Mon in *I* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.01027	-0.931	59.10337	-0.973	60.04615	-0.978	60.13932	-0.690	60.23421	-0.690	61.76655	-0.426
59.01192	-0.908	59.10509	-0.974	60.04788	-0.971	60.14098	-0.686	60.23587	-0.697	61.76828	-0.432
59.01365	-0.943	59.10681	-0.972	60.04953	-0.977	60.14270	-0.673	60.23759	-0.714	61.76993	-0.442
59.01537	-0.934	59.10847	-0.970	60.05126	-0.957	60.14436	-0.663	60.23925	-0.718	61.77166	-0.411
59.01703	-0.945	59.11019	-0.962	60.05298	-0.938	60.14608	-0.664	60.24097	-0.737	61.77338	-0.423
59.01875	-0.943	59.11185	-0.965	60.05464	-0.956	60.14780	-0.659	60.24263	-0.725	61.77504	-0.436
59.02041	-0.944	59.11357	-0.953	60.05636	-0.941	60.14946	-0.641	60.24435	-0.739	61.77676	-0.436
59.02213	-0.925	59.11523	-0.956	60.05802	-0.944	60.15118	-0.618	60.24607	-0.747	61.77842	-0.431
59.02379	-0.943	59.11695	-0.962	60.05974	-0.929	60.15284	-0.625	60.24773	-0.765	61.78014	-0.425
59.02551	-0.944	59.11861	-0.950	60.06139	-0.927	60.15456	-0.602	60.24945	-0.791	61.14409	-0.419
59.02717	-0.954	59.12033	-0.936	60.06312	-0.932	60.15622	-0.599	60.25111	-0.786	61.14581	-0.422
59.02889	-0.939	59.12199	-0.937	60.06477	-0.930	60.15794	-0.596	60.25283	-0.796	61.14747	-0.426
59.03054	-0.946	59.12371	-0.939	60.06650	-0.924	60.15960	-0.577	60.25449	-0.796	61.14919	-0.431
59.03227	-0.965	59.12544	-0.937	60.06815	-0.918	60.16132	-0.562	60.25621	-0.804	61.15091	-0.432
59.03399	-0.950	59.12709	-0.924	60.06988	-0.928	60.16305	-0.568	60.25794	-0.823	61.15257	-0.441
59.03565	-0.961	59.12882	-0.928	60.07160	-0.928	60.16470	-0.566	60.25959	-0.834	61.15429	-0.425
59.03737	-0.977	59.13047	-0.920	60.07326	-0.930	60.16642	-0.541	60.26132	-0.821	61.15595	-0.433
59.03903	-0.964	59.13220	-0.929	60.07498	-0.920	60.16808	-0.524	60.26297	-0.826	61.15767	-0.443
59.04075	-0.967	59.13385	-0.906	60.07664	-0.906	60.16980	-0.535	60.26470	-0.834	61.15933	-0.456
59.04241	-0.966	59.13557	-0.915	60.07836	-0.915	60.17146	-0.530	60.26635	-0.840	61.16105	-0.450
59.04413	-0.962	59.13730	-0.895	60.08002	-0.911	60.17318	-0.524	60.26808	-0.839	61.16271	-0.467
59.04585	-0.986	59.13895	-0.896	60.08174	-0.913	60.17484	-0.524	60.26980	-0.855	61.16443	-0.472
59.04751	-0.980	59.14068	-0.881	60.08340	-0.903	60.17656	-0.524	60.27146	-0.865	61.16609	-0.490
59.04923	-0.995	59.14233	-0.869	60.08512	-0.894	60.17829	-0.511	60.27318	-0.861	61.16781	-0.502
59.05089	-0.990	59.14406	-0.873	60.08684	-0.895	60.17994	-0.516	60.27483	-0.867	61.16953	-0.520
59.05261	-0.997	59.14571	-0.862	60.08850	-0.885	60.18167	-0.521	60.27656	-0.867	61.17119	-0.532
59.05427	-1.003	59.14744	-0.852	60.09022	-0.878	60.18332	-0.520	60.27828	-0.872	61.17291	-0.548
59.05599	-0.991	59.14909	-0.854	60.09188	-0.872	60.18505	-0.529	61.71917	-0.724	61.17457	-0.568
59.05765	-0.995	59.15082	-0.847	60.09360	-0.872	60.18843	-0.535	61.72083	-0.721	61.17629	-0.565
59.05937	-1.007	59.15247	-0.834	60.09526	-0.874	60.19015	-0.524	61.72255	-0.719	61.17795	-0.584
59.06109	-0.996	59.15420	-0.838	60.09698	-0.868	60.19181	-0.521	61.72427	-0.722	61.17967	-0.598
59.06275	-1.001	59.15592	-0.833	60.09864	-0.869	60.19353	-0.520	61.72593	-0.722	61.18133	-0.605
59.06447	-0.985	59.15758	-0.820	60.10036	-0.851	60.19519	-0.517	61.72765	-0.690	61.18305	-0.623
59.06613	-0.980	59.15930	-0.822	60.10208	-0.851	60.19691	-0.519	61.72931	-0.678	61.18478	-0.645
59.06785	-0.986	59.16096	-0.806	60.10374	-0.841	60.19857	-0.519	61.73103	-0.686	61.18643	-0.656
59.06951	-0.993	59.16268	-0.793	60.10546	-0.828	60.20029	-0.529	61.73269	-0.650	61.18816	-0.674
59.07123	-1.015	59.16434	-0.783	60.10712	-0.827	60.20201	-0.515	61.73441	-0.675	61.18981	-0.676
59.07289	-1.007	59.16606	-0.782	60.10884	-0.816	60.20367	-0.538	61.73607	-0.634	61.19154	-0.694

**Table 9.** Continued

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
59.07461	-0.993	59.16772	-0.773	60.11050	-0.821	60.20539	-0.531	61.73779	-0.626	61.19319	-0.701
59.07633	-1.006	60.01905	-0.974	60.11222	-0.802	60.20705	-0.528	61.73945	-0.626	61.19492	-0.708
59.07799	-0.988	60.02077	-0.986	60.11388	-0.811	60.20877	-0.544	61.74117	-0.617	61.19664	-0.731
59.07971	-1.004	60.02243	-0.976	60.11560	-0.800	60.21049	-0.563	61.74290	-0.594	61.19830	-0.726
59.08137	-0.993	60.02415	-0.994	60.11726	-0.791	60.21215	-0.573	61.74455	-0.580	61.20002	-0.737
59.08309	-0.986	60.02587	-0.983	60.11898	-0.793	60.21387	-0.579	61.74628	-0.575	61.20168	-0.762
59.08475	-0.993	60.02753	-1.001	60.12070	-0.772	60.21553	-0.585	61.74793	-0.557	61.20340	-0.789
59.08647	-0.995	60.02925	-1.011	60.12236	-0.767	60.21725	-0.583	61.74966	-0.545	61.20512	-0.819
59.08813	-0.985	60.03091	-1.001	60.12408	-0.763	60.21897	-0.613	61.75131	-0.531	61.20678	-0.797
59.08985	-0.994	60.03263	-1.002	60.12574	-0.762	60.22063	-0.611	61.75304	-0.523	61.20850	-0.806
59.09157	-0.993	60.03429	-1.000	60.12746	-0.761	60.22235	-0.605	61.75476	-0.508	61.21016	-0.806
59.09323	-0.998	60.03601	-0.976	60.12912	-0.741	60.22401	-0.617	61.75641	-0.502	61.21188	-0.801
59.09495	-0.996	60.03767	-0.974	60.13084	-0.740	60.22573	-0.643	61.75814	-0.483		
59.09661	-0.989	60.03939	-0.988	60.13250	-0.726	60.22739	-0.667	61.75979	-0.466		
59.09833	-0.985	60.04112	-0.957	60.13422	-0.719	60.22911	-0.679	61.76152	-0.469		
59.09999	-0.981	60.04277	-0.987	60.13594	-0.720	60.23077	-0.667	61.76317	-0.449		
59.10171	-0.976	60.04450	-0.965	60.13760	-0.706	60.23249	-0.681	61.76490	-0.427		

**Table 10.** The TOM observational data of V868 Mon in *B* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
85.997139	-1.083	86.051340	-1.225	86.103829	-1.540	86.156329	-1.665	86.211445	-1.616
85.998840	-1.087	86.053030	-1.230	86.105519	-1.552	86.158019	-1.655	86.213146	-1.597
86.000530	-1.059	86.054720	-1.259	86.107220	-1.564	86.159720	-1.682	86.214847	-1.621
86.002220	-1.063	86.056410	-1.272	86.108910	-1.551	86.161410	-1.708	86.216537	-1.589
86.003921	-1.039	86.058111	-1.300	86.110600	-1.564	86.165704	-1.670	86.218239	-1.568
86.005611	-1.053	86.059801	-1.294	86.112301	-1.552	86.167394	-1.652	86.219928	-1.566
86.007301	-1.061	86.061491	-1.306	86.113991	-1.581	86.169083	-1.644	86.221630	-1.591
86.009002	-1.030	86.063181	-1.325	86.115681	-1.593	86.170773	-1.678	86.223320	-1.592
86.010692	-1.031	86.064882	-1.317	86.117371	-1.573	86.172475	-1.672	86.225021	-1.560
86.012382	-1.032	86.066572	-1.295	86.119072	-1.594	86.174164	-1.642	86.226711	-1.560
86.014083	-1.017	86.068273	-1.322	86.120762	-1.604	86.175854	-1.644	86.228401	-1.551
86.015773	-1.037	86.069963	-1.343	86.122463	-1.598	86.177556	-1.670	86.230102	-1.551
86.017463	-1.042	86.071653	-1.359	86.124153	-1.593	86.179246	-1.681	86.231792	-1.551
86.019164	-1.026	86.073354	-1.374	86.125843	-1.599	86.180947	-1.677	86.233493	-1.547
86.020854	-1.030	86.075044	-1.402	86.127544	-1.625	86.182637	-1.666	86.235183	-1.554
86.022544	-1.029	86.076734	-1.413	86.129234	-1.632	86.184327	-1.655	86.236884	-1.528
86.024246	-1.037	86.078435	-1.418	86.130924	-1.644	86.186028	-1.650	86.238574	-1.522
86.025935	-1.039	86.080125	-1.445	86.132614	-1.637	86.187718	-1.658	86.240276	-1.533
86.027625	-1.003	86.081815	-1.439	86.134315	-1.638	86.189419	-1.682	86.241965	-1.498
86.029315	-1.029	86.083505	-1.441	86.136005	-1.637	86.191109	-1.656	86.243667	-1.543
86.031016	-1.032	86.085206	-1.457	86.137706	-1.640	86.192810	-1.629	86.245357	-1.508
86.032706	-1.082	86.086896	-1.461	86.139396	-1.644	86.194500	-1.670	86.247046	-1.463
86.034396	-1.080	86.088586	-1.481	86.141086	-1.665	86.196202	-1.693	86.248748	-1.463
86.036086	-1.071	86.090287	-1.499	86.142776	-1.662	86.197891	-1.657	86.250449	-1.473
86.037787	-1.083	86.091977	-1.495	86.144477	-1.669	86.199581	-1.637	86.253829	-1.459
86.039477	-1.114	86.093667	-1.504	86.146167	-1.688	86.201283	-1.629	86.255530	-1.475
86.041178	-1.118	86.095357	-1.519	86.147857	-1.692	86.202972	-1.632	86.257220	-1.441
86.042868	-1.133	86.097058	-1.512	86.149558	-1.714	86.204674	-1.632	86.258921	-1.449
86.044558	-1.154	86.098748	-1.514	86.151248	-1.701	86.206364	-1.621	86.260611	-1.439
86.046248	-1.177	86.100438	-1.514	86.152938	-1.711	86.208065	-1.625	86.262313	-1.436
86.047949	-1.210	86.102139	-1.537	86.154639	-1.706	86.209755	-1.611	86.264002	-1.444
86.049639	-1.214								

**Table 11.** The TOM observational data of V868 Mon in *V* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
85.997712	-0.357	86.051902	-0.498	86.104390	-0.801	86.156890	-0.890	86.212017	-0.878
85.999402	-0.365	86.053592	-0.509	86.106080	-0.802	86.158580	-0.890	86.213707	-0.855
86.001092	-0.357	86.055281	-0.520	86.107781	-0.805	86.160281	-0.929	86.215409	-0.882
86.002781	-0.332	86.056983	-0.536	86.109471	-0.823	86.161971	-0.969	86.217110	-0.861
86.004483	-0.347	86.058673	-0.556	86.111173	-0.811	86.166265	-0.915	86.218800	-0.847
86.006173	-0.337	86.060362	-0.554	86.112862	-0.816	86.167955	-0.906	86.220490	-0.828
86.007874	-0.350	86.062052	-0.572	86.114552	-0.845	86.169645	-0.900	86.222191	-0.834
86.009564	-0.331	86.063754	-0.598	86.116242	-0.850	86.171335	-0.932	86.223881	-0.841
86.011254	-0.309	86.065443	-0.566	86.117943	-0.834	86.173036	-0.909	86.225582	-0.823
86.012943	-0.325	86.067133	-0.583	86.119633	-0.841	86.174726	-0.901	86.227272	-0.838
86.014645	-0.317	86.068835	-0.601	86.121323	-0.842	86.176427	-0.923	86.228974	-0.829
86.016335	-0.328	86.070524	-0.615	86.123024	-0.847	86.178117	-0.931	86.230663	-0.823
86.018024	-0.329	86.072214	-0.638	86.124714	-0.850	86.179818	-0.933	86.232365	-0.821
86.019726	-0.341	86.073916	-0.640	86.126404	-0.852	86.181508	-0.935	86.234055	-0.820
86.021416	-0.335	86.075605	-0.655	86.128105	-0.883	86.183198	-0.935	86.235756	-0.831
86.023117	-0.331	86.077307	-0.661	86.129795	-0.883	86.184899	-0.913	86.237446	-0.814
86.024807	-0.316	86.078997	-0.672	86.131485	-0.876	86.186589	-0.918	86.239147	-0.781
86.026497	-0.305	86.080686	-0.698	86.133186	-0.883	86.188279	-0.924	86.240837	-0.801
86.028186	-0.317	86.082376	-0.698	86.134876	-0.889	86.189980	-0.935	86.242527	-0.803
86.029876	-0.313	86.084078	-0.717	86.136566	-0.892	86.191682	-0.917	86.244228	-0.785
86.031578	-0.314	86.085767	-0.727	86.138267	-0.889	86.193372	-0.871	86.245918	-0.757
86.033267	-0.374	86.087457	-0.719	86.139957	-0.888	86.195061	-0.939	86.247619	-0.746
86.034957	-0.346	86.089147	-0.737	86.141647	-0.912	86.196763	-0.953	86.249309	-0.740
86.036659	-0.366	86.090849	-0.734	86.143349	-0.914	86.198453	-0.921	86.252700	-0.762
86.038349	-0.372	86.092538	-0.749	86.145038	-0.906	86.200154	-0.887	86.254402	-0.763
86.040050	-0.391	86.094228	-0.756	86.146728	-0.916	86.201844	-0.902	86.256092	-0.794
86.041740	-0.413	86.095930	-0.772	86.148430	-0.947	86.203545	-0.896	86.257793	-0.729
86.043430	-0.405	86.097619	-0.768	86.150119	-0.943	86.205235	-0.887	86.259483	-0.737
86.045119	-0.429	86.099309	-0.762	86.151809	-0.958	86.206936	-0.899	86.261173	-0.723
86.046821	-0.452	86.101011	-0.772	86.153499	-0.943	86.208626	-0.881	86.262874	-0.739
86.048511	-0.465	86.102700	-0.792	86.155200	-0.943	86.210316	-0.889	86.264564	-0.708
86.050200	-0.483								

**Table 12.** The TOM observational data of V868 Mon in *R* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
85.998071	0.185	86.052261	0.076	86.106450	-0.219	86.158950	-0.335	86.214078	-0.280
85.999761	0.213	86.053950	0.063	86.108140	-0.229	86.160640	-0.383	86.215767	-0.310
86.001450	0.205	86.055640	0.052	86.109830	-0.232	86.162330	-0.440	86.217469	-0.292
86.003152	0.229	86.057342	0.032	86.111531	-0.226	86.166624	-0.331	86.219159	-0.259
86.004842	0.214	86.059031	0.026	86.113221	-0.228	86.168314	-0.327	86.220860	-0.278
86.006531	0.198	86.060721	0.027	86.114911	-0.252	86.170004	-0.329	86.222550	-0.280
86.008233	0.223	86.062423	-0.001	86.116601	-0.259	86.171705	-0.341	86.224251	-0.266
86.009923	0.234	86.064112	-0.020	86.118302	-0.244	86.173395	-0.320	86.225941	-0.248
86.011612	0.266	86.065802	0.019	86.119992	-0.256	86.175085	-0.313	86.227631	-0.245
86.013314	0.248	86.067504	0.012	86.121693	-0.267	86.176786	-0.338	86.229332	-0.234
86.015004	0.233	86.069193	-0.034	86.123383	-0.255	86.178476	-0.346	86.231022	-0.249
86.016693	0.217	86.070883	-0.027	86.125073	-0.248	86.180177	-0.347	86.232724	-0.234
86.018395	0.264	86.072585	-0.049	86.126774	-0.273	86.181867	-0.342	86.234413	-0.239
86.020085	0.253	86.074274	-0.061	86.128464	-0.281	86.183557	-0.340	86.236115	-0.246
86.021774	0.239	86.075976	-0.068	86.130154	-0.298	86.185258	-0.324	86.237805	-0.234
86.023476	0.262	86.077666	-0.080	86.131844	-0.292	86.186948	-0.321	86.239506	-0.195
86.025166	0.241	86.079355	-0.092	86.133545	-0.297	86.188649	-0.340	86.241196	-0.205
86.026855	0.264	86.081045	-0.104	86.135235	-0.292	86.190339	-0.326	86.242897	-0.193
86.028557	0.256	86.082735	-0.124	86.136936	-0.298	86.192041	-0.319	86.244587	-0.238
86.030247	0.254	86.084436	-0.126	86.138626	-0.298	86.193730	-0.320	86.246288	-0.177
86.031936	0.250	86.086126	-0.125	86.140316	-0.307	86.195432	-0.353	86.247978	-0.162
86.033626	0.169	86.087816	-0.128	86.142006	-0.318	86.197122	-0.359	86.249680	-0.159
86.035316	0.205	86.089517	-0.154	86.143707	-0.315	86.198823	-0.348	86.251369	-0.194
86.037017	0.216	86.091207	-0.154	86.145397	-0.308	86.200513	-0.338	86.253059	-0.160
86.038707	0.176	86.092897	-0.170	86.147099	-0.312	86.202203	-0.311	86.254761	-0.168
86.040409	0.173	86.094599	-0.185	86.148788	-0.363	86.203904	-0.303	86.256450	-0.180
86.042099	0.172	86.096288	-0.189	86.150478	-0.345	86.205594	-0.307	86.258152	-0.162
86.043788	0.167	86.097978	-0.184	86.152168	-0.362	86.207295	-0.309	86.259842	-0.148
86.045490	0.162	86.099668	-0.180	86.153869	-0.337	86.208985	-0.315	86.261543	-0.126
86.047180	0.121	86.101369	-0.183	86.155559	-0.331	86.210686	-0.303	86.263233	-0.140
86.048869	0.122	86.103059	-0.216	86.157249	-0.302	86.212376	-0.291	86.264934	-0.127
86.050571	0.111	86.104749	-0.215						

**Table 13.** The TOM observational data of V868 Mon in  $I$  band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$	2455900+	$\Delta m$
85.998343	0.690	86.052533	0.574	86.106722	0.292	86.159222	0.132	86.214350	0.212
86.000033	0.713	86.054222	0.563	86.108412	0.287	86.160912	0.124	86.216039	0.202
86.001734	0.715	86.055924	0.538	86.110114	0.287	86.162614	0.127	86.217741	0.232
86.003424	0.706	86.057614	0.533	86.111803	0.280	86.166896	0.184	86.219431	0.272
86.005114	0.713	86.059303	0.540	86.113493	0.268	86.168586	0.215	86.221132	0.259
86.006815	0.725	86.060993	0.513	86.115183	0.259	86.170287	0.192	86.222822	0.249
86.008505	0.748	86.062695	0.503	86.116884	0.254	86.171977	0.174	86.224523	0.241
86.010195	0.737	86.064384	0.472	86.118574	0.263	86.173667	0.206	86.226213	0.247
86.011884	0.759	86.066074	0.520	86.120276	0.261	86.175368	0.225	86.227914	0.252
86.013586	0.773	86.067776	0.508	86.121965	0.257	86.177058	0.170	86.229604	0.284
86.015276	0.739	86.069465	0.477	86.123655	0.268	86.178748	0.167	86.231306	0.251
86.016977	0.733	86.071167	0.464	86.125345	0.262	86.180449	0.152	86.232996	0.269
86.018667	0.742	86.072857	0.453	86.127046	0.245	86.182139	0.171	86.234697	0.265
86.020357	0.731	86.074546	0.447	86.128736	0.232	86.183840	0.163	86.236387	0.271
86.022058	0.747	86.076248	0.439	86.130426	0.213	86.185530	0.165	86.238088	0.276
86.023748	0.745	86.077938	0.430	86.132127	0.220	86.187232	0.162	86.239778	0.300
86.025438	0.741	86.079627	0.415	86.133817	0.213	86.188921	0.168	86.241468	0.282
86.027127	0.763	86.081317	0.402	86.135507	0.218	86.190611	0.164	86.243169	0.278
86.028829	0.743	86.083019	0.380	86.137208	0.211	86.192313	0.190	86.244859	0.297
86.030519	0.767	86.084708	0.387	86.138898	0.214	86.194002	0.185	86.246560	0.293
86.032208	0.726	86.086398	0.368	86.140588	0.206	86.195704	0.150	86.248250	0.374
86.033898	0.706	86.088100	0.354	86.142289	0.184	86.197394	0.159	86.249952	0.339
86.035600	0.732	86.089789	0.361	86.143979	0.186	86.199095	0.170	86.251641	0.317
86.037289	0.720	86.091479	0.351	86.145669	0.170	86.200785	0.181	86.253343	0.335
86.038991	0.689	86.093181	0.338	86.147371	0.182	86.202486	0.197	86.255033	0.317
86.040681	0.686	86.094871	0.326	86.149060	0.136	86.204176	0.212	86.256722	0.299
86.042371	0.660	86.096560	0.331	86.150750	0.146	86.205877	0.212	86.258424	0.328
86.044060	0.645	86.098250	0.335	86.152440	0.143	86.207567	0.209	86.260114	0.382
86.045762	0.650	86.099940	0.320	86.154141	0.152	86.209269	0.178	86.261815	0.327
86.047452	0.637	86.101641	0.327	86.155831	0.145	86.210958	0.211	86.263505	0.362
86.049153	0.616	86.103331	0.296	86.157521	0.201	86.212660	0.218	86.265206	0.389
86.050843	0.618	86.105033	0.299						

**Table 14.** The TOM observational data of V868 Mon in *I* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456200+	$\Delta m$	2456200+	$\Delta m$	2456200+	$\Delta m$	2456200+	$\Delta m$
79.308954	0.437	79.329359	0.600	79.349764	0.698	79.368804	0.751
79.310320	0.438	79.330725	0.610	79.351130	0.698	79.370169	0.735
79.311686	0.462	79.332079	0.630	79.352484	0.710	79.371535	0.737
79.313040	0.469	79.333445	0.643	79.353850	0.710	79.372889	0.735
79.314406	0.483	79.334811	0.661	79.355204	0.716	79.374244	0.742
79.315760	0.493	79.336165	0.658	79.356570	0.727	79.375609	0.734
79.317125	0.499	79.337531	0.662	79.357924	0.726	79.376975	0.724
79.318480	0.508	79.338885	0.642	79.359278	0.731	79.378329	0.702
79.319845	0.511	79.340250	0.656	79.360644	0.719	79.379695	0.710
79.321200	0.527	79.341605	0.684	79.362010	0.727	79.381049	0.705
79.322565	0.541	79.342970	0.696	79.363364	0.721	79.382415	0.712
79.323919	0.551	79.344325	0.717	79.364730	0.732	79.383769	0.696
79.325285	0.565	79.345690	0.728	79.366084	0.730	79.385135	0.674
79.326639	0.569	79.347044	0.710	79.367450	0.734	79.386489	0.667
79.328005	0.592	79.348410	0.715				

**Table 15.** The TOM observational data of V868 Mon in *N* band observed by 60cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456200+	$\Delta m$	2456200+	$\Delta m$	2456200+	$\Delta m$	2456200+	$\Delta m$
79.309122	-0.003	79.329527	0.175	79.349932	0.279	79.368972	0.307
79.310488	-0.01	79.330893	0.173	79.351298	0.264	79.370337	0.330
79.311842	0.013	79.332247	0.179	79.352652	0.283	79.371691	0.310
79.313208	0.016	79.333613	0.202	79.354006	0.287	79.373057	0.332
79.314562	0.026	79.334967	0.195	79.355372	0.293	79.374411	0.297
79.315928	0.043	79.336333	0.198	79.356726	0.295	79.375777	0.304
79.317282	0.051	79.337687	0.210	79.358092	0.308	79.377131	0.294
79.318647	0.060	79.339053	0.219	79.359446	0.291	79.378497	0.299
79.320002	0.080	79.340418	0.231	79.360812	0.285	79.379851	0.272
79.321367	0.090	79.341772	0.240	79.362166	0.276	79.381217	0.274
79.322722	0.106	79.343138	0.256	79.363532	0.290	79.382583	0.261
79.324087	0.106	79.344492	0.265	79.364886	0.286	79.383937	0.263
79.325441	0.127	79.345847	0.272	79.366252	0.290	79.385291	0.263
79.326807	0.146	79.347212	0.260	79.367617	0.315	79.386657	0.241
79.328161	0.149	79.348578	0.273				

**Table 16.** The TOM observational data of V868 Mon in  $V$  band observed by 85cm

JD(HeI.)		JD(HeI.)		JD(HeI.)		JD(HeI.)		JD(HeI.)	
2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$
79.13596	-0.674	79.15727	-0.677	79.17671	-0.527	79.19724	-0.383	79.21669	-0.371
79.13751	-0.786	79.15789	-0.668	79.17734	-0.516	79.19787	-0.379	79.21732	-0.379
79.13820	-0.778	79.15853	-0.670	79.17796	-0.517	79.19850	-0.379	79.21794	-0.383
79.13927	-0.775	79.15916	-0.661	79.17860	-0.521	79.19912	-0.377	79.21857	-0.389
79.13989	-0.766	79.15978	-0.662	79.17923	-0.508	79.19975	-0.380	79.21919	-0.389
79.14034	-0.772	79.16041	-0.653	79.17985	-0.502	79.20037	-0.372	79.21983	-0.387
79.14096	-0.775	79.16103	-0.654	79.18048	-0.494	79.20101	-0.375	79.22045	-0.374
79.14159	-0.768	79.16167	-0.642	79.18110	-0.500	79.20163	-0.378	79.22108	-0.373
79.14222	-0.757	79.16229	-0.632	79.18174	-0.483	79.20226	-0.371	79.22170	-0.392
79.14285	-0.752	79.16292	-0.629	79.18236	-0.490	79.20288	-0.373	79.22233	-0.383
79.14347	-0.754	79.16354	-0.635	79.18299	-0.476	79.20351	-0.370	79.22296	-0.392
79.14410	-0.757	79.16417	-0.631	79.18361	-0.464	79.20414	-0.372	79.22359	-0.393
79.14472	-0.757	79.16479	-0.620	79.18424	-0.471	79.20477	-0.384	79.22421	-0.391
79.14536	-0.751	79.16543	-0.617	79.18487	-0.459	79.20539	-0.373	79.22484	-0.389
79.14598	-0.742	79.16605	-0.602	79.18550	-0.457	79.20602	-0.377	79.22546	-0.385
79.14661	-0.735	79.16668	-0.601	79.18612	-0.426	79.20666	-0.373	79.22610	-0.404
79.14723	-0.739	79.16730	-0.600	79.18675	-0.443	79.20728	-0.382	79.22673	-0.403
79.14786	-0.737	79.16793	-0.595	79.18737	-0.437	79.20791	-0.366	79.22735	-0.406
79.14848	-0.727	79.16857	-0.597	79.18800	-0.409	79.20853	-0.368	79.22798	-0.412
79.14912	-0.715	79.16919	-0.578	79.18864	-0.427	79.20916	-0.371	79.22860	-0.428
79.14975	-0.721	79.16982	-0.580	79.18926	-0.428	79.20979	-0.376	79.22924	-0.425
79.15037	-0.709	79.17044	-0.570	79.18989	-0.409	79.21042	-0.373	79.22986	-0.424
79.15100	-0.717	79.17107	-0.577	79.19160	-0.410	79.21104	-0.381	79.23049	-0.436
79.15162	-0.712	79.17170	-0.563	79.19222	-0.399	79.21167	-0.368	79.23111	-0.432
79.15226	-0.706	79.17233	-0.564	79.19285	-0.415	79.21229	-0.374	79.23174	-0.450
79.15288	-0.695	79.17295	-0.557	79.19347	-0.400	79.21293	-0.382	79.23236	-0.450
79.15351	-0.704	79.17358	-0.552	79.19410	-0.393	79.21355	-0.376	79.23300	-0.453
79.15413	-0.696	79.17420	-0.551	79.19473	-0.388	79.21418	-0.375	79.23362	-0.463
79.15476	-0.687	79.17483	-0.542	79.19536	-0.380	79.21480	-0.372	79.23425	-0.468
79.15539	-0.689	79.17546	-0.536	79.19598	-0.374	79.21543	-0.380	79.23487	-0.468
79.15602	-0.688	79.17609	-0.535	79.19661	-0.396	79.21607	-0.374	79.23550	-0.461
79.15664	-0.678								



**Table 17.** The TOM observational data of V868 Mon in *R* band observed by 85cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$
79.13635	-0.166	79.15810	-0.077	79.17755	0.076	79.19808	0.208	79.21752	0.219
79.13842	-0.178	79.15873	-0.060	79.17817	0.086	79.19871	0.203	79.21815	0.213
79.13948	-0.174	79.15936	-0.069	79.17881	0.093	79.19933	0.209	79.21877	0.209
79.14055	-0.166	79.15999	-0.060	79.17943	0.096	79.19996	0.201	79.21940	0.210
79.14117	-0.170	79.16061	-0.049	79.18006	0.101	79.20058	0.205	79.22004	0.202
79.14180	-0.157	79.16124	-0.053	79.18068	0.102	79.20122	0.218	79.22066	0.204
79.14243	-0.160	79.16186	-0.044	79.18131	0.115	79.20184	0.202	79.22129	0.214
79.14306	-0.154	79.16250	-0.042	79.18194	0.111	79.20247	0.221	79.22191	0.215
79.14368	-0.163	79.16313	-0.029	79.18257	0.125	79.20309	0.220	79.22254	0.203
79.14431	-0.154	79.16375	-0.035	79.18319	0.112	79.20372	0.222	79.22317	0.214
79.14493	-0.154	79.16438	-0.030	79.18382	0.137	79.20435	0.213	79.22380	0.189
79.14556	-0.143	79.16500	-0.018	79.18444	0.141	79.20498	0.219	79.22442	0.192
79.14619	-0.144	79.16564	-0.011	79.18507	0.145	79.20560	0.211	79.22505	0.194
79.14682	-0.148	79.16626	-0.013	79.18571	0.143	79.20623	0.220	79.22567	0.192
79.14744	-0.142	79.16689	-0.011	79.18633	0.155	79.20686	0.215	79.22631	0.191
79.14807	-0.120	79.16751	-0.004	79.18696	0.133	79.20749	0.206	79.22693	0.179
79.14869	-0.117	79.16814	-0.001	79.18758	0.148	79.20811	0.215	79.22756	0.183
79.14933	-0.120	79.16877	0.003	79.18821	0.151	79.20874	0.217	79.22818	0.176
79.14996	-0.115	79.16940	0.006	79.18884	0.167	79.20936	0.218	79.22881	0.170
79.15058	-0.112	79.17002	0.012	79.18947	0.182	79.21000	0.216	79.22943	0.169
79.15121	-0.111	79.17065	0.013	79.19009	0.201	79.21063	0.210	79.23007	0.157
79.15183	-0.112	79.17127	0.042	79.19181	0.189	79.21125	0.217	79.23069	0.160
79.15247	-0.099	79.17191	0.028	79.19243	0.189	79.21188	0.206	79.23132	0.153
79.15309	-0.092	79.17254	0.037	79.19306	0.199	79.21250	0.217	79.23194	0.146
79.15372	-0.098	79.17316	0.034	79.19368	0.197	79.21314	0.221	79.23257	0.146
79.15434	-0.089	79.17379	0.046	79.19431	0.188	79.21376	0.214	79.23321	0.138
79.15497	-0.093	79.17441	0.047	79.19494	0.204	79.21439	0.223	79.23383	0.128
79.15560	-0.084	79.17504	0.058	79.19557	0.203	79.21501	0.211	79.23446	0.122
79.15623	-0.089	79.17567	0.065	79.19619	0.204	79.21564	0.210	79.23508	0.134
79.15685	-0.082	79.17630	0.057	79.19682	0.213	79.21626	0.208	79.23571	0.120
79.15748	-0.079	79.17692	0.077	79.19744	0.206	79.21690	0.206		

**Table 18.** The TOM observational data of V868 Mon in  $I$  band observed by 85cm

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$	2456600+	$\Delta m$
79.13666	0.269	79.15830	0.453	79.17774	0.594	79.19828	0.716	79.21772	0.725
79.13862	0.348	79.15892	0.462	79.17837	0.602	79.19890	0.725	79.21835	0.721
79.13967	0.360	79.15956	0.458	79.17901	0.600	79.19953	0.710	79.21897	0.713
79.14074	0.350	79.16019	0.477	79.17963	0.613	79.20015	0.727	79.21960	0.722
79.14137	0.356	79.16081	0.475	79.18026	0.610	79.20078	0.719	79.22023	0.736
79.14199	0.368	79.16144	0.480	79.18088	0.630	79.20141	0.723	79.22086	0.719
79.14263	0.354	79.16206	0.475	79.18151	0.629	79.20204	0.729	79.22148	0.726
79.14325	0.369	79.16270	0.487	79.18214	0.627	79.20266	0.717	79.22211	0.716
79.14388	0.371	79.16332	0.491	79.18277	0.640	79.20329	0.723	79.22273	0.721
79.14450	0.373	79.16395	0.491	79.18339	0.638	79.20391	0.721	79.22337	0.719
79.14513	0.384	79.16457	0.491	79.18402	0.639	79.20455	0.730	79.22399	0.705
79.14575	0.385	79.16520	0.502	79.18464	0.649	79.20517	0.728	79.22462	0.716
79.14639	0.389	79.16583	0.506	79.18527	0.661	79.20580	0.733	79.22524	0.709
79.14701	0.379	79.16646	0.521	79.18590	0.662	79.20642	0.714	79.22587	0.701
79.14764	0.397	79.16708	0.513	79.18653	0.666	79.20706	0.717	79.22651	0.705
79.14826	0.394	79.16771	0.510	79.18715	0.693	79.20769	0.723	79.22713	0.694
79.14889	0.400	79.16833	0.526	79.18778	0.651	79.20831	0.729	79.22776	0.681
79.14953	0.400	79.16897	0.539	79.18840	0.677	79.20894	0.723	79.22838	0.696
79.15015	0.410	79.16960	0.533	79.18904	0.681	79.20956	0.732	79.22901	0.686
79.15078	0.407	79.17022	0.529	79.18967	0.702	79.21020	0.723	79.22963	0.684
79.15140	0.410	79.17085	0.547	79.19029	0.667	79.21082	0.720	79.23027	0.675
79.15203	0.427	79.17147	0.544	79.19200	0.697	79.21145	0.723	79.23089	0.666
79.15266	0.418	79.17211	0.557	79.19263	0.696	79.21207	0.726	79.23152	0.675
79.15329	0.417	79.17273	0.557	79.19325	0.706	79.21270	0.725	79.23214	0.659
79.15391	0.419	79.17336	0.561	79.19388	0.711	79.21333	0.728	79.23277	0.669
79.15454	0.429	79.17398	0.559	79.19450	0.725	79.21396	0.726	79.23340	0.661
79.15516	0.438	79.17461	0.575	79.19514	0.720	79.21458	0.715	79.23403	0.657
79.15580	0.437	79.17523	0.576	79.19576	0.711	79.21521	0.728	79.23465	0.649
79.15642	0.449	79.17587	0.577	79.19639	0.718	79.21583	0.723	79.23528	0.640
79.15705	0.441	79.17649	0.583	79.19701	0.717	79.21646	0.720	79.23590	0.631
79.15767	0.448	79.17712	0.597	79.19764	0.733	79.21710	0.727		

**Table 19.** The TOM observational data of V868 Mon in V band observed by 1m

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$
76.32173	-0.702	76.35049	-0.495	76.37684	-0.340	76.40320	-0.378	76.42955	-0.590
76.32296	-0.691	76.35136	-0.496	76.37772	-0.336	76.40408	-0.383	76.43043	-0.599
76.32419	-0.685	76.35224	-0.488	76.37860	-0.341	76.40496	-0.395	76.43131	-0.603
76.32542	-0.677	76.35312	-0.477	76.37948	-0.345	76.40583	-0.396	76.43219	-0.605
76.32665	-0.672	76.35400	-0.468	76.38036	-0.339	76.40671	-0.408	76.43307	-0.618
76.32763	-0.666	76.35488	-0.458	76.38123	-0.344	76.40759	-0.410	76.43395	-0.621
76.32851	-0.656	76.35576	-0.453	76.38211	-0.342	76.40847	-0.417	76.43483	-0.623
76.32940	-0.655	76.35664	-0.445	76.38299	-0.340	76.40935	-0.420	76.43570	-0.632
76.33028	-0.649	76.35752	-0.442	76.38387	-0.338	76.41023	-0.435	76.43658	-0.638
76.33116	-0.639	76.35839	-0.433	76.38475	-0.334	76.41110	-0.440	76.43746	-0.643
76.33204	-0.633	76.35927	-0.424	76.38563	-0.337	76.41198	-0.449	76.43834	-0.653
76.33292	-0.628	76.36015	-0.420	76.38651	-0.332	76.41286	-0.459	76.43922	-0.656
76.33379	-0.629	76.36103	-0.408	76.38738	-0.341	76.41374	-0.469	76.44010	-0.662
76.33467	-0.611	76.36191	-0.404	76.38826	-0.338	76.41462	-0.461	76.44097	-0.668
76.33555	-0.612	76.36279	-0.401	76.38914	-0.339	76.41550	-0.478	76.44185	-0.670
76.33643	-0.601	76.36366	-0.389	76.39002	-0.336	76.41638	-0.488	76.44273	-0.676
76.33731	-0.602	76.36454	-0.388	76.39090	-0.337	76.41725	-0.495	76.44361	-0.687
76.33819	-0.592	76.36542	-0.377	76.39178	-0.346	76.41813	-0.505	76.44449	-0.684
76.33907	-0.584	76.36630	-0.373	76.39266	-0.339	76.41901	-0.514	76.44537	-0.692
76.33994	-0.586	76.36718	-0.372	76.39353	-0.339	76.41989	-0.512	76.44625	-0.701
76.34082	-0.579	76.36806	-0.360	76.39441	-0.343	76.42077	-0.518	76.44712	-0.703
76.34170	-0.564	76.36894	-0.356	76.39529	-0.348	76.42165	-0.526	76.44800	-0.706
76.34258	-0.562	76.36981	-0.354	76.39617	-0.347	76.42252	-0.543	76.44888	-0.715
76.34346	-0.552	76.37069	-0.356	76.39705	-0.344	76.42340	-0.547	76.44976	-0.719
76.34434	-0.551	76.37157	-0.344	76.39793	-0.345	76.42428	-0.547	76.45064	-0.721
76.34522	-0.540	76.37245	-0.349	76.39881	-0.353	76.42516	-0.559	76.45152	-0.727
76.34609	-0.531	76.37333	-0.273	76.39968	-0.357	76.42604	-0.561	76.45239	-0.730
76.34697	-0.526	76.37421	-0.349	76.40056	-0.365	76.42692	-0.576	76.45327	-0.743
76.34785	-0.513	76.37508	-0.348	76.40144	-0.368	76.42780	-0.588	76.45415	-0.749
76.34873	-0.514	76.37596	-0.347	76.40232	-0.381	76.42868	-0.582	76.45503	-0.749
76.34961	-0.506								

**Table 20.** The TOM observational data of V868 Mon in *R* band observed by 1m

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$
76.32200	-0.128	76.35076	0.067	76.37799	0.208	76.40435	0.170	76.43071	-0.037
76.32323	-0.126	76.35164	0.074	76.37887	0.216	76.40523	0.157	76.43158	-0.041
76.32446	-0.113	76.35252	0.075	76.37975	0.215	76.40611	0.159	76.43246	-0.042
76.32569	-0.107	76.35340	0.090	76.38063	0.217	76.40699	0.151	76.43334	-0.050
76.32692	-0.103	76.35428	0.093	76.38151	0.215	76.40786	0.144	76.43422	-0.059
76.32791	-0.096	76.35515	0.106	76.38239	0.207	76.40874	0.137	76.43510	-0.065
76.32878	-0.091	76.35603	0.110	76.38326	0.210	76.40962	0.130	76.43598	-0.070
76.32968	-0.092	76.35691	0.115	76.38415	0.215	76.41050	0.124	76.43686	-0.072
76.33055	-0.075	76.35779	0.119	76.38502	0.217	76.41138	0.123	76.43773	-0.082
76.33143	-0.077	76.35867	0.129	76.38590	0.217	76.41226	0.108	76.43861	-0.089
76.33231	-0.065	76.35955	0.138	76.38678	0.213	76.41313	0.100	76.43949	-0.100
76.33319	-0.061	76.36042	0.143	76.38766	0.215	76.41402	0.095	76.44037	-0.105
76.33407	-0.059	76.36130	0.152	76.38854	0.212	76.41489	0.087	76.44125	-0.11
76.33495	-0.046	76.36218	0.156	76.38942	0.218	76.41577	0.073	76.44213	-0.110
76.33583	-0.039	76.36306	0.159	76.39029	0.218	76.41665	0.069	76.44300	-0.116
76.33670	-0.036	76.36394	0.165	76.39117	0.214	76.41753	0.062	76.44388	-0.119
76.33758	-0.035	76.36482	0.179	76.39205	0.214	76.41841	0.054	76.44476	-0.121
76.33846	-0.025	76.36570	0.182	76.39293	0.211	76.41928	0.052	76.44564	-0.123
76.33934	-0.022	76.36657	0.185	76.39381	0.209	76.42016	0.042	76.44652	-0.126
76.34022	-0.008	76.36745	0.196	76.39469	0.213	76.42104	0.042	76.44740	-0.138
76.34110	-0.010	76.36833	0.196	76.39557	0.210	76.42192	0.027	76.44828	-0.142
76.34198	0.002	76.36921	0.196	76.39644	0.211	76.42280	0.029	76.44916	-0.147
76.34286	0.001	76.37009	0.199	76.39732	0.199	76.42368	0.007	76.45004	-0.151
76.34373	0.009	76.37097	0.203	76.39820	0.198	76.42456	0.002	76.45091	-0.153
76.34461	0.016	76.37185	0.206	76.39908	0.195	76.42544	0.005	76.45179	-0.166
76.34549	0.025	76.37272	0.206	76.39996	0.198	76.42631	-0.002	76.45267	-0.166
76.34637	0.026	76.37360	0.206	76.40084	0.194	76.42719	-0.002	76.45355	-0.159
76.34725	0.034	76.37448	0.210	76.40171	0.189	76.42807	-0.015	76.45443	-0.173
76.34812	0.046	76.37536	0.213	76.40259	0.178	76.42895	-0.017	76.45530	-0.176
76.34900	0.052	76.37624	0.207	76.40347	0.174	76.42983	-0.032	76.45618	-0.190
76.34988	0.062	76.37712	0.213						

**Table 21.** The TOM observational data of V868 Mon in  $I$  band observed by 1m

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$
76.32221	0.399	76.35098	0.594	76.37821	0.724	76.40457	0.685	76.43092	0.490
76.32345	0.406	76.35185	0.598	76.37909	0.729	76.40545	0.684	76.43180	0.488
76.32467	0.408	76.35273	0.608	76.37997	0.726	76.40632	0.674	76.43268	0.478
76.32591	0.419	76.35361	0.612	76.38084	0.732	76.40720	0.668	76.43356	0.474
76.32714	0.428	76.35449	0.620	76.38172	0.729	76.40808	0.660	76.43443	0.465
76.32812	0.433	76.35537	0.624	76.38260	0.726	76.40896	0.663	76.43532	0.457
76.32900	0.438	76.35625	0.639	76.38348	0.732	76.40984	0.651	76.43619	0.461
76.32989	0.449	76.35713	0.638	76.38436	0.727	76.41071	0.648	76.43707	0.453
76.33077	0.447	76.35800	0.652	76.38524	0.733	76.41159	0.639	76.43795	0.442
76.33165	0.461	76.35888	0.659	76.38612	0.728	76.41247	0.637	76.43883	0.439
76.33253	0.452	76.35976	0.664	76.38700	0.729	76.41335	0.622	76.43971	0.427
76.33340	0.468	76.36064	0.666	76.38787	0.726	76.41423	0.618	76.44058	0.428
76.33428	0.473	76.36152	0.675	76.38875	0.729	76.41511	0.606	76.44146	0.420
76.33516	0.475	76.36240	0.683	76.38963	0.725	76.41599	0.601	76.44234	0.419
76.33604	0.483	76.36328	0.685	76.39051	0.732	76.41687	0.599	76.44322	0.420
76.33692	0.490	76.36415	0.687	76.39139	0.728	76.41774	0.590	76.44410	0.407
76.33780	0.498	76.36503	0.695	76.39226	0.733	76.41862	0.584	76.44498	0.398
76.33868	0.502	76.36591	0.702	76.39315	0.725	76.41950	0.576	76.44586	0.396
76.33955	0.505	76.36679	0.703	76.39402	0.726	76.42038	0.566	76.44674	0.391
76.34043	0.508	76.36767	0.710	76.39490	0.729	76.42126	0.556	76.44761	0.390
76.34131	0.516	76.36855	0.714	76.39578	0.725	76.42213	0.551	76.44849	0.388
76.34219	0.526	76.36942	0.718	76.39666	0.725	76.42301	0.542	76.44937	0.378
76.34307	0.527	76.37030	0.717	76.39754	0.726	76.42389	0.534	76.45025	0.380
76.34395	0.533	76.37118	0.716	76.39842	0.719	76.42477	0.540	76.45113	0.370
76.34483	0.541	76.37206	0.726	76.39929	0.727	76.42565	0.529	76.45201	0.367
76.34570	0.546	76.37294	0.726	76.40017	0.712	76.42653	0.519	76.45288	0.366
76.34658	0.555	76.37382	0.718	76.40105	0.712	76.42741	0.507	76.45376	0.356
76.34746	0.566	76.37470	0.721	76.40193	0.701	76.42829	0.510	76.45464	0.360
76.34834	0.569	76.37557	0.720	76.40281	0.700	76.42917	0.506	76.45552	0.357
76.34922	0.582	76.37645	0.725	76.40369	0.691	76.43004	0.497	76.45640	0.353
76.35010	0.586	76.37733	0.726						

**Table 22.** The TOM observational data of V868 Mon in  $N$  band observed by 1m

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$
76.32237	-0.096	76.35114	0.103	76.37837	0.240	76.40473	0.200	76.43108	-0.004
76.32361	-0.088	76.35202	0.102	76.37925	0.238	76.40561	0.185	76.43196	-0.013
76.32484	-0.086	76.35290	0.113	76.38013	0.243	76.40648	0.190	76.43284	-0.019
76.32607	-0.085	76.35377	0.122	76.38101	0.235	76.40736	0.175	76.43372	-0.028
76.32730	-0.071	76.35465	0.128	76.38189	0.240	76.40824	0.169	76.43460	-0.028
76.32828	-0.059	76.35553	0.136	76.38277	0.240	76.40912	0.158	76.43548	-0.042
76.32916	-0.054	76.35641	0.141	76.38364	0.247	76.41000	0.161	76.43635	-0.046
76.33006	-0.051	76.35729	0.144	76.38452	0.247	76.41088	0.143	76.43723	-0.046
76.33093	-0.048	76.35817	0.159	76.38540	0.246	76.41176	0.143	76.43811	-0.058
76.33181	-0.040	76.35904	0.166	76.38628	0.246	76.41264	0.133	76.43899	-0.063
76.33269	-0.035	76.35993	0.169	76.38716	0.249	76.41351	0.129	76.43987	-0.061
76.33357	-0.033	76.36080	0.180	76.38804	0.246	76.41439	0.116	76.44075	-0.067
76.33445	-0.023	76.36168	0.179	76.38891	0.244	76.41527	0.109	76.44163	-0.076
76.33532	-0.019	76.36256	0.192	76.38979	0.254	76.41615	0.101	76.44250	-0.076
76.33620	-0.011	76.36344	0.198	76.39067	0.251	76.41703	0.098	76.44338	-0.081
76.33708	-0.001	76.36432	0.204	76.39155	0.244	76.41791	0.091	76.44426	-0.088
76.33796	0.004	76.36519	0.210	76.39243	0.240	76.41879	0.083	76.44514	-0.089
76.33884	0.009	76.36607	0.217	76.39331	0.245	76.41966	0.076	76.44602	-0.097
76.33972	0.016	76.36695	0.216	76.39419	0.246	76.42054	0.067	76.44690	-0.105
76.34060	0.023	76.36783	0.230	76.39506	0.243	76.42142	0.068	76.44777	-0.105
76.34148	0.026	76.36871	0.230	76.39594	0.245	76.42230	0.054	76.44866	-0.119
76.34235	0.033	76.36959	0.234	76.39682	0.234	76.42318	0.047	76.44953	-0.113
76.34323	0.038	76.37047	0.232	76.39770	0.230	76.42406	0.036	76.45041	-0.125
76.34411	0.045	76.37135	0.230	76.39858	0.234	76.42493	0.042	76.45129	-0.127
76.34499	0.048	76.37223	0.240	76.39946	0.229	76.42581	0.032	76.45217	-0.128
76.34587	0.056	76.37310	0.239	76.40034	0.220	76.42669	0.021	76.45305	-0.133
76.34674	0.061	76.37398	0.238	76.40121	0.212	76.42757	0.018	76.45392	-0.141
76.34762	0.067	76.37486	0.235	76.40209	0.223	76.42845	0.011	76.45480	-0.151
76.34850	0.073	76.37574	0.240	76.40297	0.205	76.42933	0.005	76.45568	-0.140
76.34938	0.083	76.37662	0.237	76.40385	0.210	76.43021	-0.001	76.45656	-0.158
76.35026	0.093	76.37749	0.244						

**Table 23.** The TOM observational data of V868 Mon in *V* band observed by 1m

JD(HeI.)		JD(HeI.)		JD(HeI.)		JD(HeI.)	
2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$
78.25663	-0.552	78.28028	-0.358	78.29995	-0.327	78.32022	-0.403
78.25864	-0.528	78.28197	-0.348	78.30164	-0.328	78.32191	-0.417
78.26062	-0.518	78.28366	-0.339	78.30333	-0.331	78.32360	-0.430
78.26231	-0.496	78.28535	-0.337	78.30502	-0.320	78.32529	-0.417
78.26400	-0.481	78.28704	-0.332	78.30671	-0.333	78.32698	-0.460
78.26569	-0.470	78.28872	-0.327	78.30840	-0.337	78.32866	-0.467
78.26738	-0.460	78.29041	-0.333	78.31009	-0.332	78.33186	-0.498
78.26906	-0.443	78.29319	-0.327	78.31178	-0.347	78.33355	-0.517
78.27244	-0.415	78.29488	-0.325	78.31347	-0.352	78.33524	-0.522
78.27413	-0.398	78.29657	-0.329	78.31684	-0.372	78.33693	-0.532
78.27582	-0.381	78.29826	-0.328	78.31853	-0.398	78.33862	-0.554
78.27859	-0.364						

**Table 24.** The TOM observational data of V868 Mon in *R* band observed by 1m

JD(HeI.)		JD(HeI.)		JD(HeI.)		JD(HeI.)	
2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$
78.25722	0.020	78.28087	0.202	78.30055	0.224	78.32081	0.150
78.25935	0.038	78.28256	0.214	78.30224	0.221	78.32250	0.140
78.26121	0.042	78.28425	0.219	78.30393	0.219	78.32419	0.121
78.26290	0.067	78.28594	0.221	78.30562	0.220	78.32757	0.091
78.26459	0.080	78.28763	0.211	78.30730	0.217	78.33246	0.062
78.26628	0.097	78.28932	0.224	78.30899	0.212	78.33415	0.042
78.27134	0.135	78.29379	0.221	78.31068	0.216	78.33584	0.031
78.27303	0.135	78.29548	0.223	78.31237	0.204	78.33752	0.020
78.27472	0.168	78.29717	0.219	78.31406	0.177		
78.27918	0.193	78.29886	0.225	78.31912	0.157		

**Table 25.** The TOM observational data of V868 Mon in *I* band observed by 1m

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$
78.25758	0.545	78.27954	0.710	78.29922	0.732	78.31948	0.676
78.25977	0.568	78.28123	0.712	78.30091	0.719	78.32117	0.660
78.26158	0.581	78.28292	0.726	78.30259	0.727	78.32286	0.641
78.26326	0.591	78.28461	0.727	78.30428	0.732	78.32624	0.629
78.26495	0.602	78.28630	0.721	78.30598	0.734	78.32792	0.620
78.26664	0.615	78.28799	0.728	78.30766	0.722	78.33282	0.572
78.26833	0.665	78.28968	0.730	78.30935	0.723	78.33451	0.552
78.27170	0.658	78.29415	0.730	78.31104	0.724	78.33620	0.551
78.27339	0.665	78.29584	0.728	78.31442	0.707	78.33788	0.533
78.27508	0.679	78.29753	0.722	78.31610	0.702		

**Table 26.** The TOM observational data of V868 Mon in *N* band observed by 1m

JD(Hel.)		JD(Hel.)		JD(Hel.)		JD(Hel.)	
2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$	2456900+	$\Delta m$
78.25782	0.097	78.28148	0.274	78.30115	0.292	78.31973	0.221
78.26002	0.117	78.28317	0.292	78.30285	0.284	78.32142	0.201
78.26182	0.130	78.28486	0.280	78.30454	0.279	78.32311	0.182
78.26351	0.156	78.28655	0.275	78.30622	0.274	78.32480	0.177
78.26520	0.136	78.28824	0.290	78.30791	0.268	78.32649	0.156
78.26689	0.168	78.28993	0.283	78.30960	0.269	78.32818	0.136
78.26858	0.153	78.29440	0.272	78.31129	0.265	78.33307	0.101
78.27195	0.208	78.29609	0.280	78.31298	0.249	78.33476	0.094
78.27364	0.227	78.29778	0.283	78.31467	0.257	78.33645	0.096
78.27533	0.240	78.29946	0.3	78.31636	0.243	78.33813	0.071
78.27979	0.267						